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iRobot Corporation
TEST REPORT

SCOPE OF WORK
FCC radio and EMC testing for the Sundial radio Module model: AXF-Y1

REPORT NUMBER
104076035BOX-001c

ISSUE DATE
October 3, 2019

[REVISED DATE]
November 4, 2019

PAGES
349

DOCUMENT CONTROL NUMBER
Non-Specific Radio Report Shell Rev. December 2017

EMISSIONS TEST REPORT

(Full COMPLIANCE)

Report Number: 104076035BOX-001c
Project Number: G104076035

Report Issue Date: 10/03/2019
Report Re-issued Date: 11/04/2019

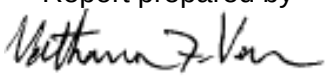
Model(s) Tested: AXF-Y1
Model(s) Partially Tested: None
Model(s) Not Tested but declared equivalent by the client: None

Standards: CFR47 FCC Part 15.247 Subpart C: 09/2019,
CFR47 FCC Part 15 Subpart B: 09/2019,
CFR47 FCC Part 1.1310: 09/2019,
CFR47 FCC Part 2.1091: 09/2019

Tested by:
Intertek Testing Services NA, Inc.
70 Codman Hill Road
Boxborough, MA 01719
USA

Client:
iRobot Corporation
8 Crosby Dr Mail Stop 12-2
Bedford, MA 01730
USA

Report prepared by



Vathana Ven/EMC Staff Engineer

Report reviewed by

Kouma Sinn/EMC Staff Engineer

Table of Contents

1 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 4.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested **complies** with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

2 Test Summary

Section	Test full name	Result
3	Client Information	--
4	Description of Equipment Under Test and Variant Models	--
5	System Setup and Method	--
6	Maximum Peak Output Power CFR47 FCC Part 15 Subpart C:09/2019, Section 15.247 (b)(3)	Pass
7	Maximum Permissible Exposure (MPE) CFR47 FCC Part 1.1310: 09/2019, CFR47 FCC Part 2.1091: 09/2019	
8	6 dB Bandwidth and Occupied Bandwidth CFR47 FCC Part 15 Subpart C: 09/2019, Section 15.247 (a)(2)	Pass
9	Maximum Power Spectral Density CFR47 FCC Part 15 Subpart C: 09/2019, Section 15.247 (e)	Pass
10	Band Edge Compliance CFR47 FCC Part 15 Subpart C: 09/2019, Section 15.247 (d)	Pass
11	Transmitter spurious emissions CFR47 FCC Part 15 Subpart C: 09/2019, Section 15.247 (d)	Pass
12	Digital Device and Receiver Radiated Spurious Emissions (CFR47 FCC Part 15 Subpart B 15.109: 09/2019,	Pass
13	AC Mains Conducted Emissions FCC 47CFR Part 15.107: 09/2019	Pass
14	Revision History	--

3 Client Information

This EUT was tested at the request of:

Client: iRobot Corporation
8 Crosby Dr Mail Stop 12-2
Bedford, MA 01730
USA

Contact: Stephen Pallotta
Telephone: +1 (781) 430-3284
Fax: None
Email: spallotta@irobot.com

4 Description of Equipment Under Test and Variant Models

Manufacturer: iRobot Corporation
8 Crosby Dr Mail Stop 12-2
Bedford, MA 01730
USA

Equipment Under Test				
Description	Manufacturer	Model Name	Model Number	Serial Number
WiFi Module	iRobot Corporation	Sundial	AXF-Y1	P1 FCC #1

Receive Date:	07/16/2019
Received Condition:	Good
Type:	Production

Description of Equipment Under Test (provided by client)
The equipment under test is a WiFi Module

Equipment Under Test Power Configuration			
Rated Voltage	Rated Current	Rated Frequency	Number of Phases
5 VDC	N/A	N/A	N/A

Operating modes of the EUT:

No.	Descriptions of EUT Exercising
1	Tx mode
2	Rx mode

Software used by the EUT:

No.	Descriptions of EUT Exercising
1	Test script was provided by client

Radio/Receiver Characteristics	
Frequency Band(s)	2412-2462 MHz
Modulation Type(s)	IEEE 802.11b, IEE 802.11g, IEEE 802.11n HT20, IEEE 802.11n HT40
Maximum Output Power	25.02 dBm (Conducted Power)
Test Channels	Low (2412 MHz) Mid (2442 MHz) High (2462 MHz)
Occupied Bandwidth	See data sections
6 dB Bandwidth	See data sections
Frequency Hopper: Number of Hopping Channels	N/A
Frequency Hopper: Channel Dwell Time	N/A
Frequency Hopper: Max interval between two instances of use of the same channel	N/A
MIMO Information (# of Transmit and Receive antenna ports)	N/A
Equipment Type	Module
Antenna Type and Gain	Integral, +4 dBi

Variant Models:

The following variant models were not tested as part of this evaluation, but have been identified by the manufacturer as being electrically identical models, depopulated models, or with reasonable similarity to the model(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

None

5 System Setup and Method

Cables					
ID	Description	Length (m)	Shielding	Ferrites	Termination
--	Power Cable	2	None	None	AC Mains

Support Equipment			
Description	Manufacturer	Model Number	Serial Number
Laptop	DELL	LATITUDE E5440	Not Labelled
USB AC Adapter	Apple	A1385	Not Labelled

5.1 Method:

Configuration as required by Configuration as required by FCC Part 15 Subpart C 15.247: 09/2019, FCC Part 15 Subpart B: 09/2019, CFR47 FCC Part 1.1310: 09/2019, CFR47 FCC Part 2.1091: 09/2019, ANSI C 63.10: 2013, ANSI C 63.4: 2014, and KDB 558074 D01 15.247 Meas Guidance v05r02.

5.2 EUT Block Diagram:

6 Maximum Peak Output Power

6.1 Method

Tests are performed in accordance with CFR47 FCC Part 15.247, ANSI C63.10, and KDB 558074.

TEST SITE: EMC Lab

The EMC Lab has one Semi-anechoic Chamber and one Shielded Chamber. AC Mains Power is available at 120, 230, and 277 Single Phase; 208, 400, and 480 3-Phase. Large reference ground-planes are installed in the general lab area to facilitate EMC work not requiring a shielded environment.

6.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
CEN001'	DC-40GHz attenuator 20dB	Centric RF	C411-20	CEN001	02/01/2019	02/01/2020
CBLHF2012-2M-1'	2m 9kHz-40GHz Coaxial Cable - SET1	Huber & Suhner	SF102	252675001	02/01/2019	02/01/2020
ROS005-1'	Signal and Spectrum Analyzer	Rohde & Schwarz	FSW43	100646	10/15/2018	10/15/2019
DS40'	Temp, humidity, pressure gauge	Digi Sense	68000-49	181717625	11/06/2018	11/06/2019

Software Utilized:

Name	Manufacturer	Version
None	--	--

6.3 Results:

The sample tested was found to Comply.

§15.247 (b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt or 30 dBm.

Modulation: IEEC 802.11b, Bandwidth: 20 MHz

Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Output Power (dBm)
Low	2412	1	15.07
Mid	2442	1	15.14
High	2462	1	15.02
Low	2412	2	15.46
Mid	2442	2	15.14
High	2462	2	15.31
Low	2412	5.5	16.77
Mid	2442	5.5	16.87
High	2462	5.5	16.74
Low	2412	11	18.52
Mid	2442	11	18.62
High	2462	11	18.73

Modulation: IEEC 802.11g, Bandwidth: 20 MHz

Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Output Power (dBm)
Low	2412	6	20.83
Mid	2442	6	20.57
High	2462	6	20.72
Low	2412	9	21.24
Mid	2442	9	21.05
High	2462	9	21.92
Low	2412	12	21.48
Mid	2442	12	21.16
High	2462	12	21.12
Low	2412	18	21.76
Mid	2442	18	21.49
High	2462	18	21.73
Low	2412	24	21.62
Mid	2442	24	21.46
High	2462	24	21.45
Low	2412	36	21.70
Mid	2442	36	21.63
High	2462	36	21.49
Low	2412	48	21.72
Mid	2442	48	21.62
High	2462	48	21.91
Low	2412	54	21.56
Mid	2442	54	21.70
High	2462	54	21.42

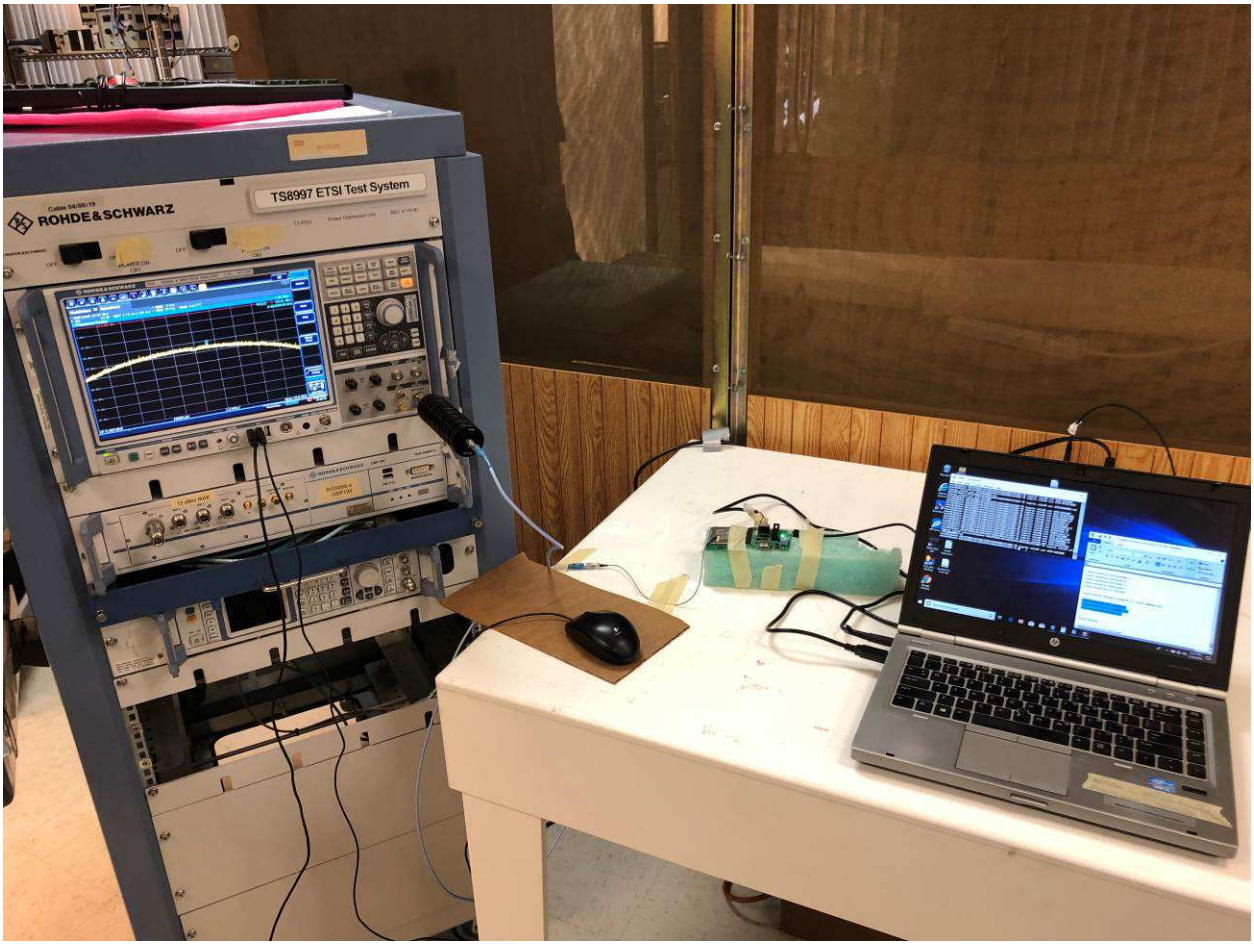
Modulation: IEEC 802.11n HT20, Bandwidth: 20 MHz

Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Output Power (dBm)
Low	2412	MCS0	20.72
Mid	2442	MCS0	20.71
High	2462	MCS0	20.54
Low	2412	MCS1	21.15
Mid	2442	MCS1	21.02
High	2462	MCS1	20.80
Low	2412	MCS2	20.77
Mid	2442	MCS2	21.05
High	2462	MCS2	20.81
Low	2412	MCS3	21.41
Mid	2442	MCS3	21.45
High	2462	MCS3	21.35
Low	2412	MCS4	21.48
Mid	2442	MCS4	21.47
High	2462	MCS4	21.75
Low	2412	MCS5	21.42
Mid	2442	MCS5	21.43
High	2462	MCS5	21.53
Low	2412	MCS6	21.67
Mid	2442	MCS6	21.45
High	2462	MCS6	21.57
Low	2412	MCS6	21.47
Mid	2442	MCS7	21.50
High	2462	MCS7	21.53

Modulation: IEEC 802.11n HT40, Bandwidth: 40 MHz

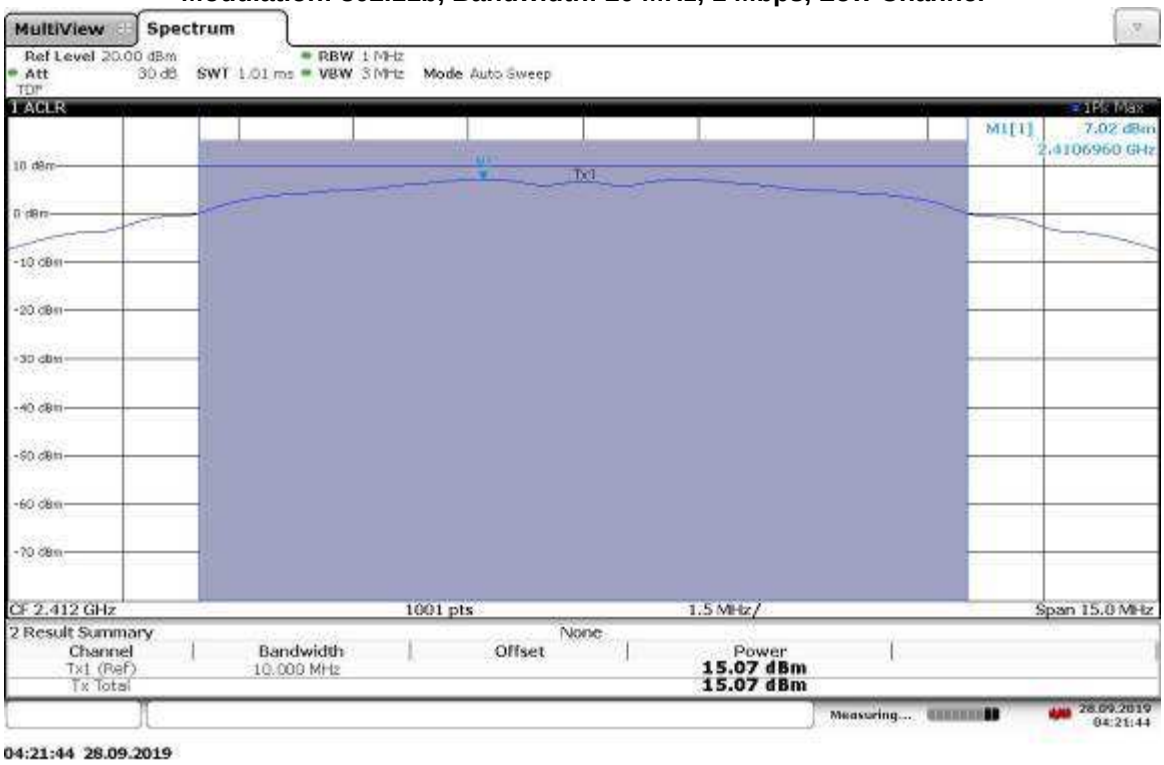
Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Output Power (dBm)
Low	2412	MCS0	23.77
Mid	2442	MCS0	23.61
High	2462	MCS0	24.09
Low	2412	MCS1	24.01
Mid	2442	MCS1	24.21
High	2462	MCS1	24.00
Low	2412	MCS2	24.18
Mid	2442	MCS2	23.94
High	2462	MCS2	24.16
Low	2412	MCS3	24.93
Mid	2442	MCS3	24.88
High	2462	MCS3	24.90
Low	2412	MCS4	24.87
Mid	2442	MCS4	24.69
High	2462	MCS4	24.74
Low	2412	MCS5	24.74
Mid	2442	MCS5	24.82
High	2462	MCS5	25.01
Low	2412	MCS6	24.94
Mid	2442	MCS6	25.02
High	2462	MCS6	24.82
Low	2412	MCS7	24.63
Mid	2442	MCS7	24.70
High	2462	MCS7	24.81

6.4 Setup Photograph:



6.5 Plots/Data:

Modulation: 802.11b, Bandwidth: 20 MHz, 1 Mbps, Low Channel



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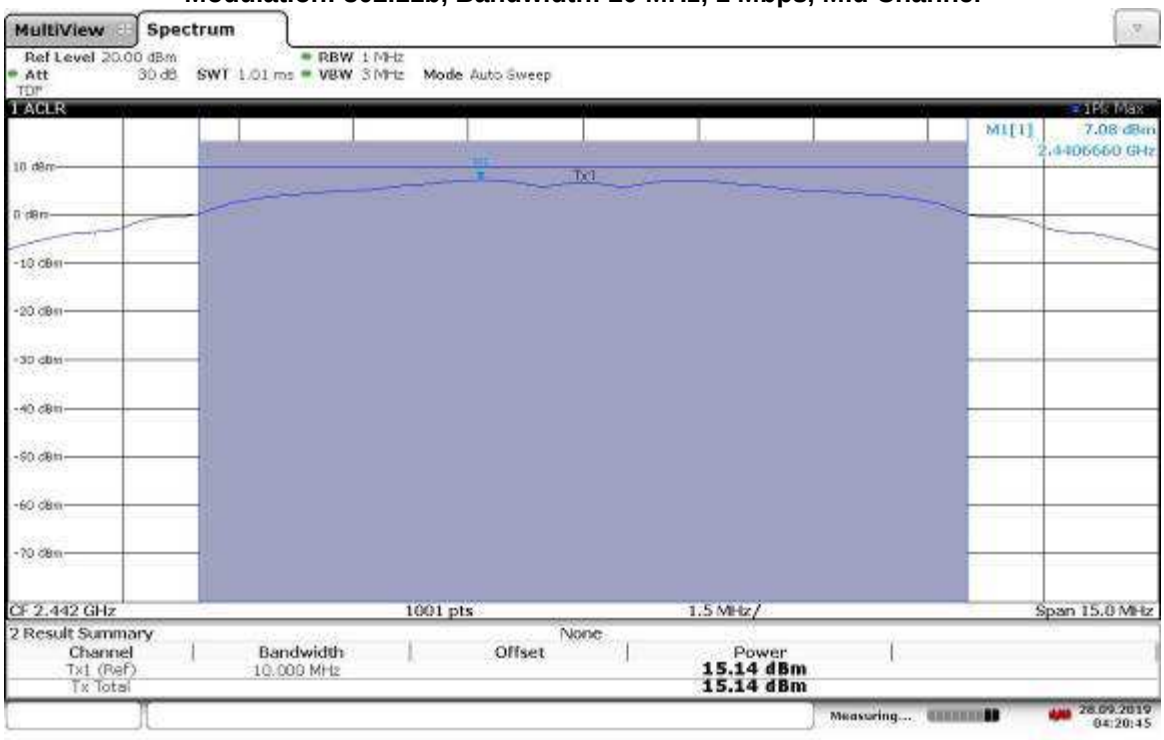
Modulation: 802.11b, Bandwidth: 20 MHz, 1 Mbps, Mid Channel



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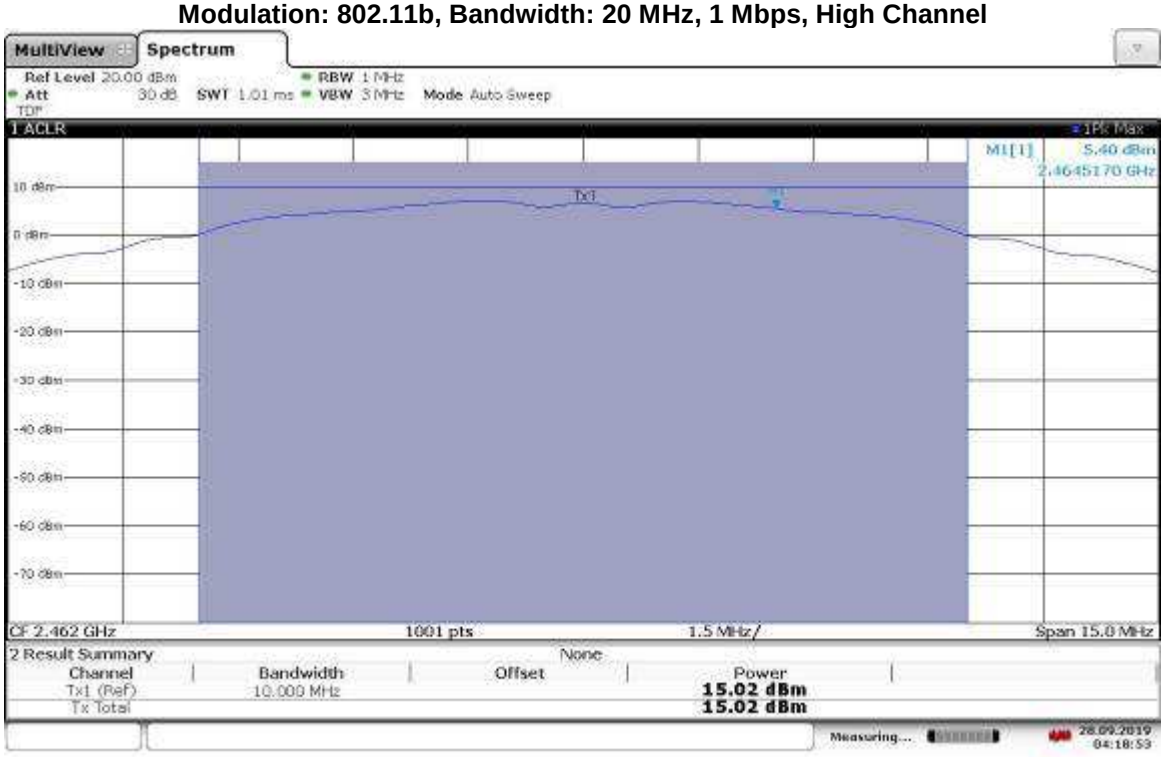
Modulation: 802.11b, Bandwidth: 20 MHz, 1 Mbps, High Channel



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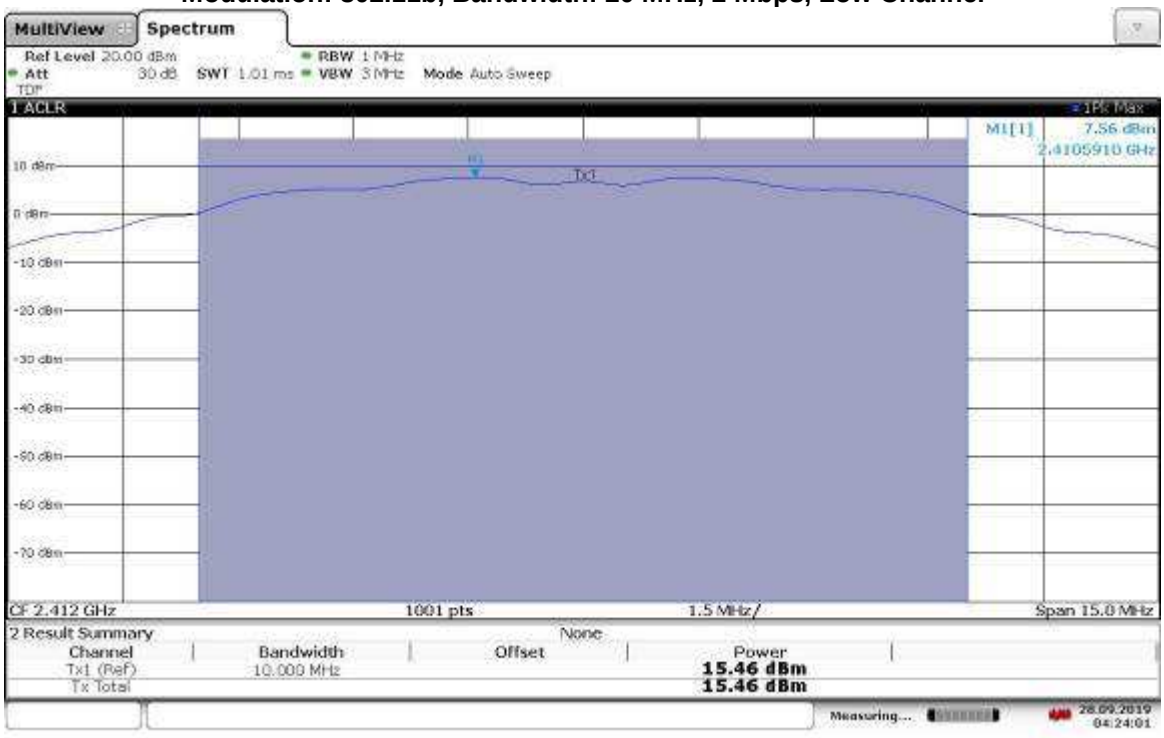
Modulation: 802.11b, Bandwidth: 20 MHz, 2 Mbps, Low Channel



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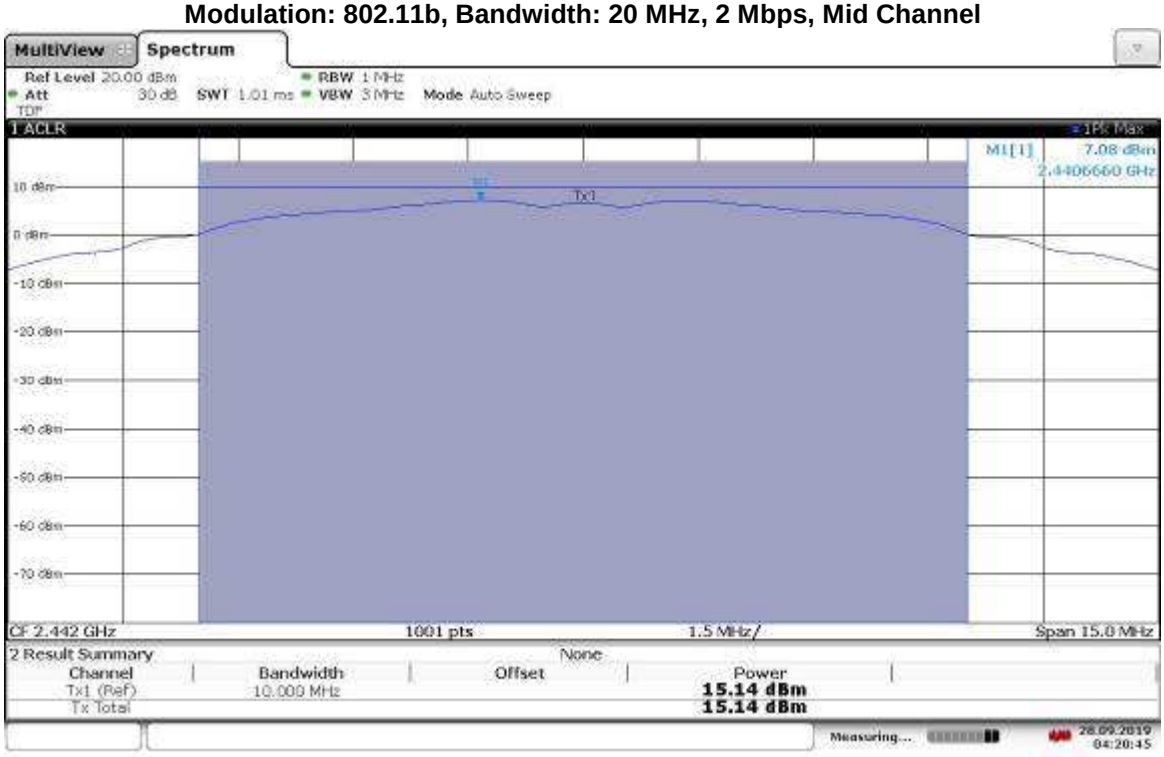

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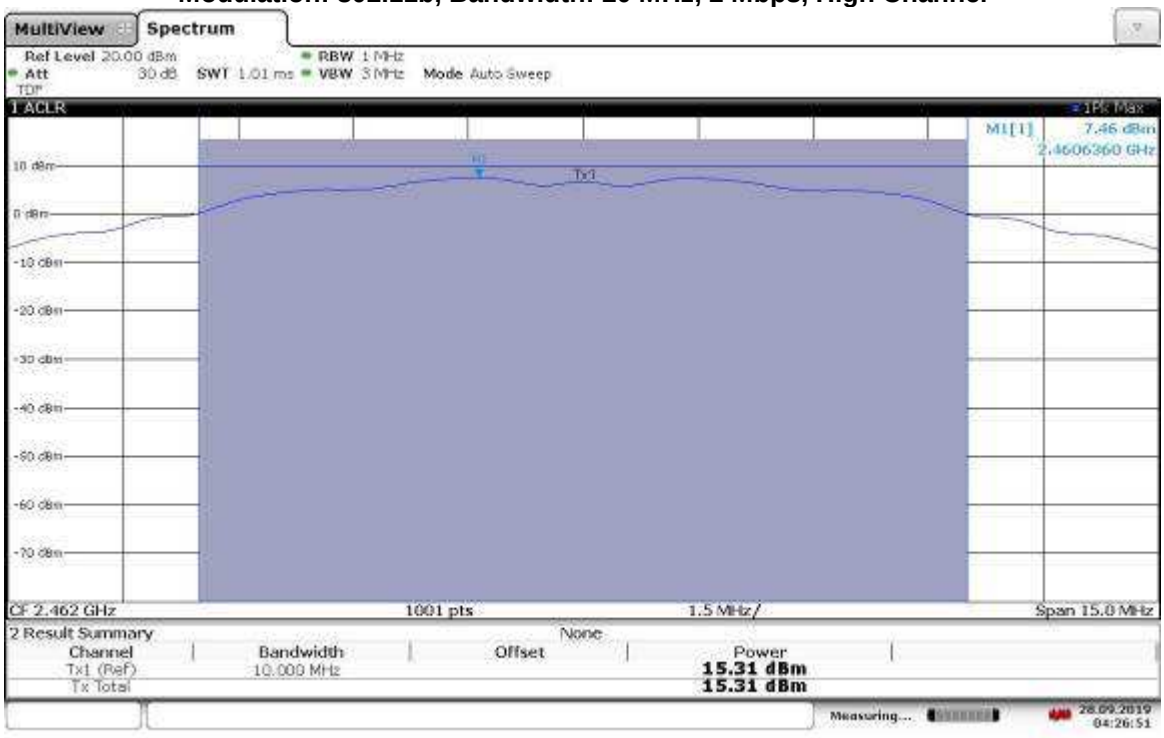
Modulation: 802.11b, Bandwidth: 20 MHz, 2 Mbps, High Channel



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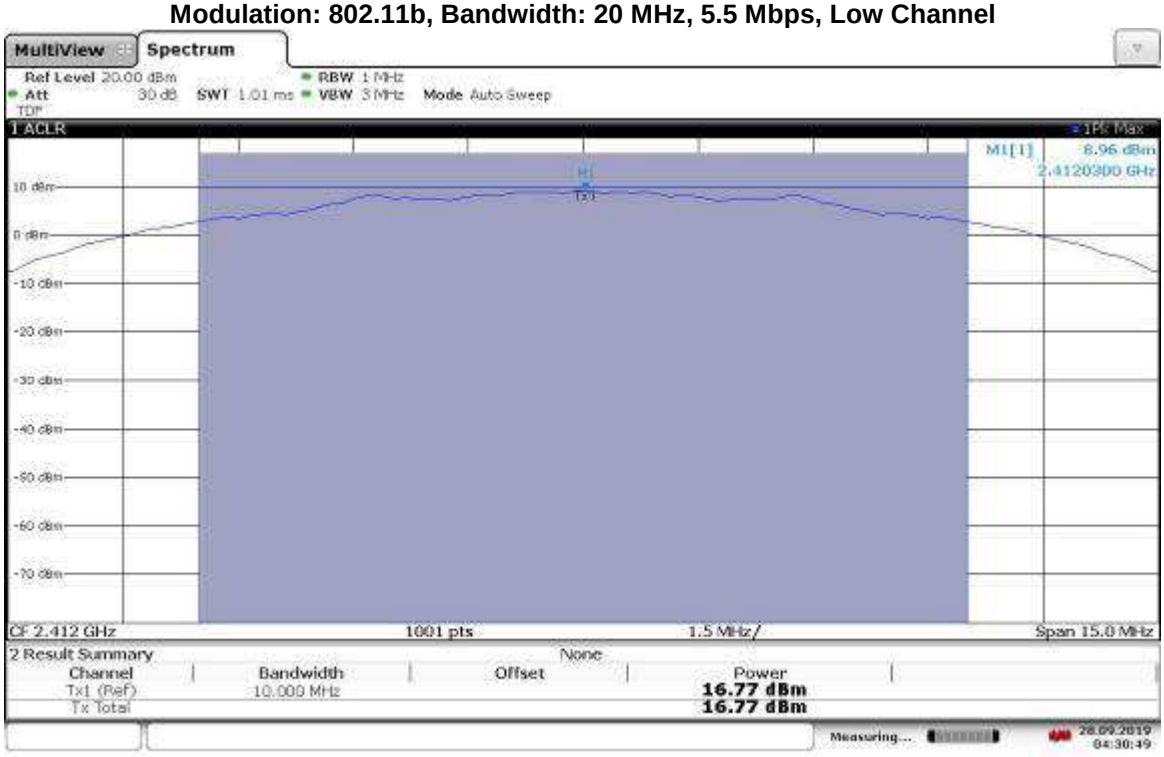
Modulation: 802.11b, Bandwidth: 20 MHz, 5.5 Mbps, Low Channel



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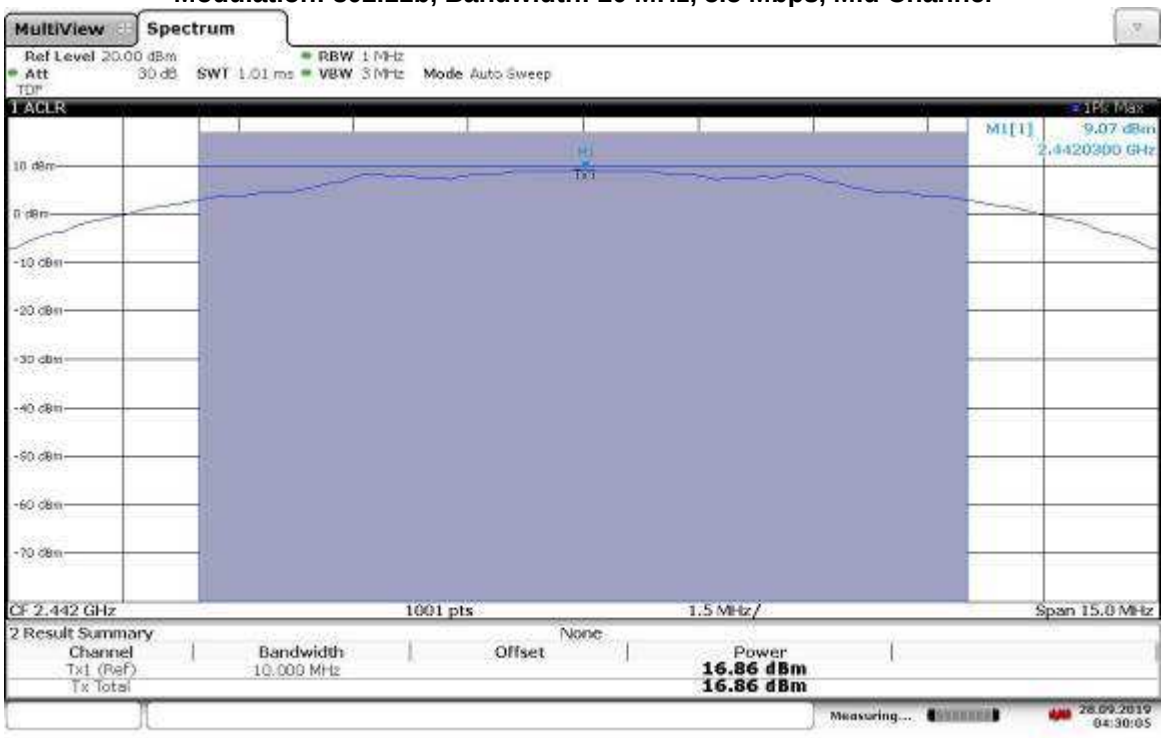
Modulation: 802.11b, Bandwidth: 20 MHz, 5.5 Mbps, Mid Channel



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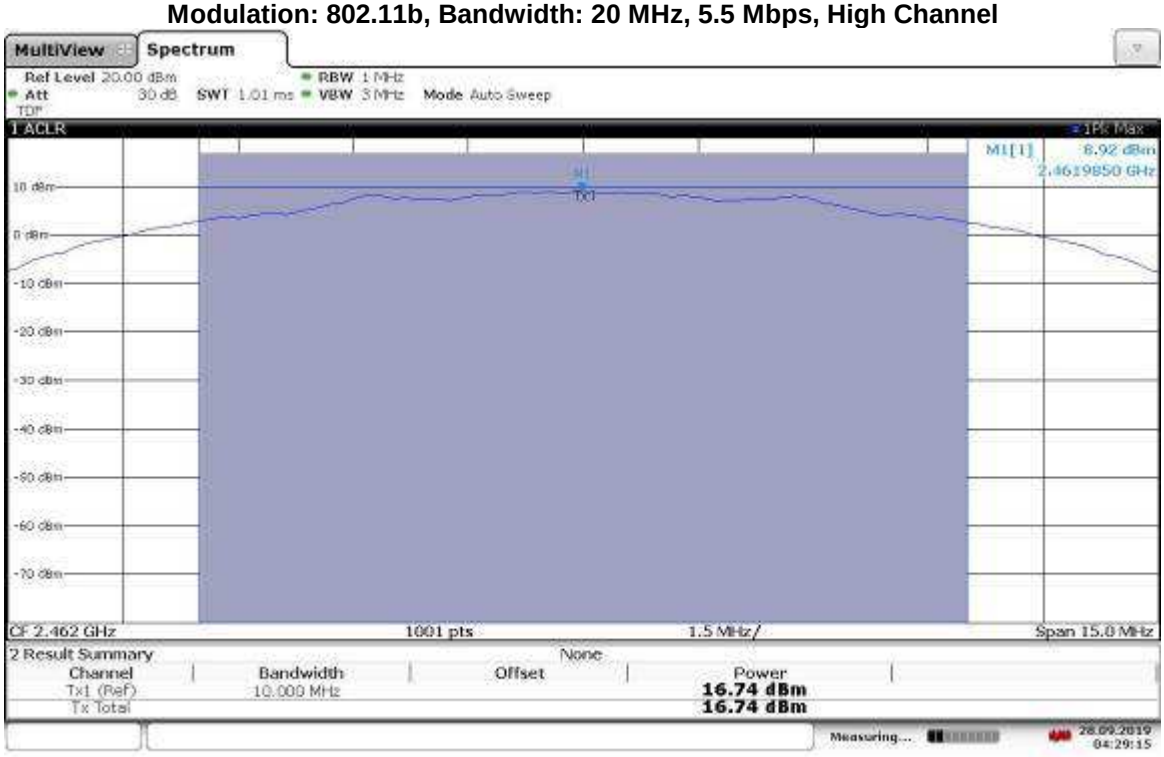
Modulation: 802.11b, Bandwidth: 20 MHz, 5.5 Mbps, High Channel



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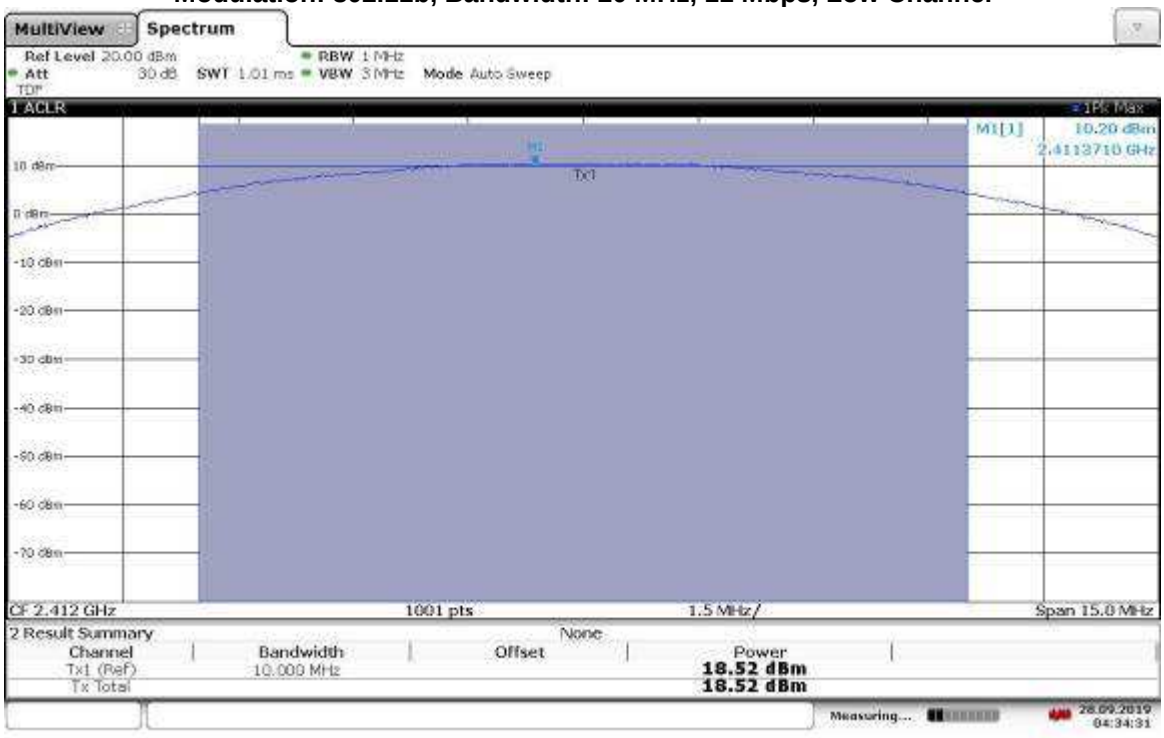
Modulation: 802.11b, Bandwidth: 20 MHz, 11 Mbps, Low Channel



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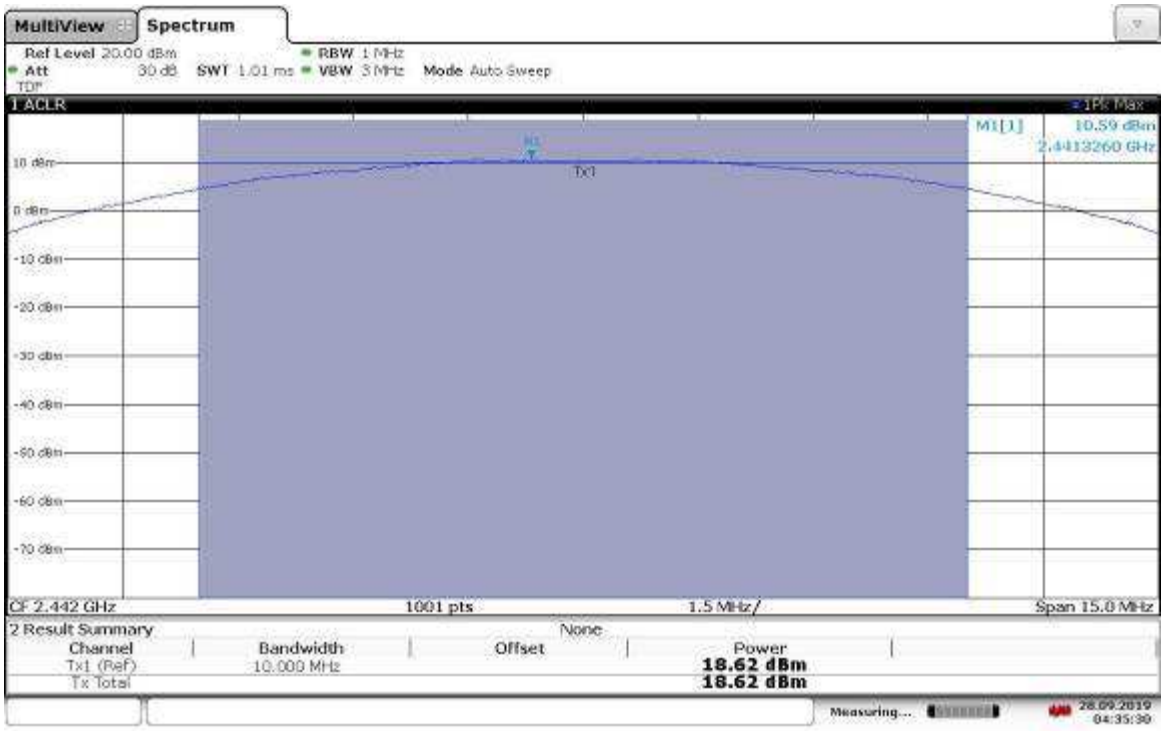
Modulation: 802.11b, Bandwidth: 20 MHz, 11 Mbps, Mid Channel



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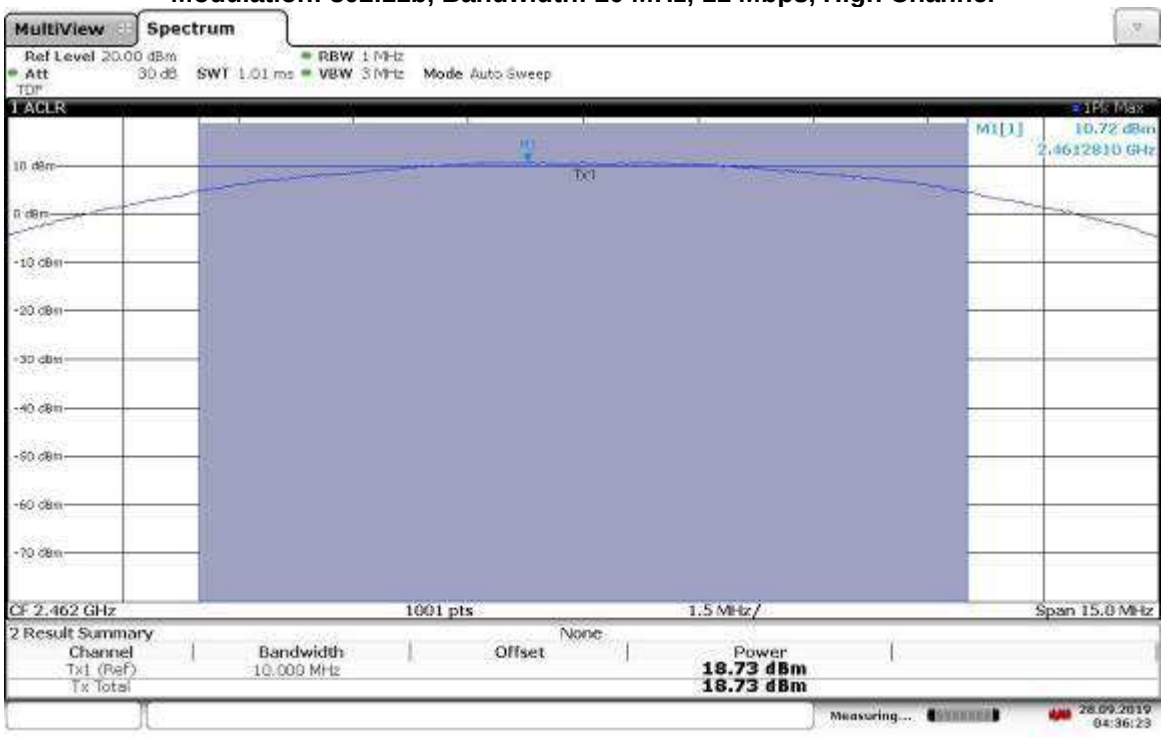
Modulation: 802.11b, Bandwidth: 20 MHz, 11 Mbps, High Channel



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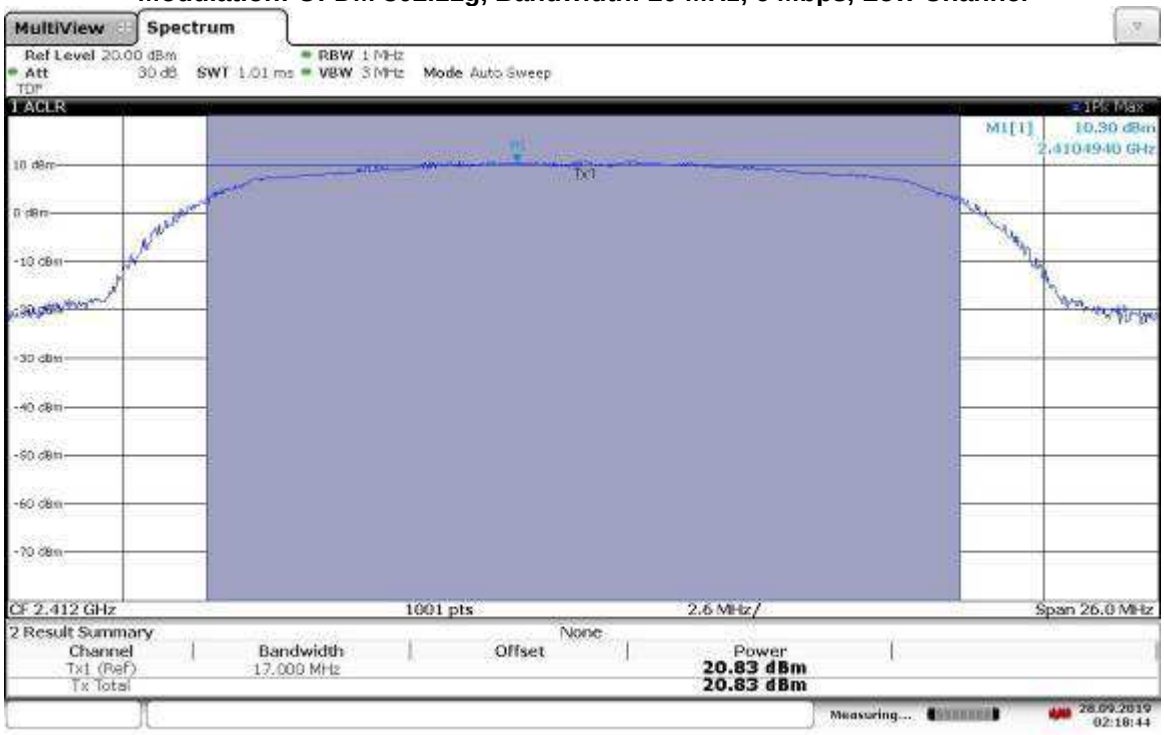
Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 6 Mbps, Low Channel



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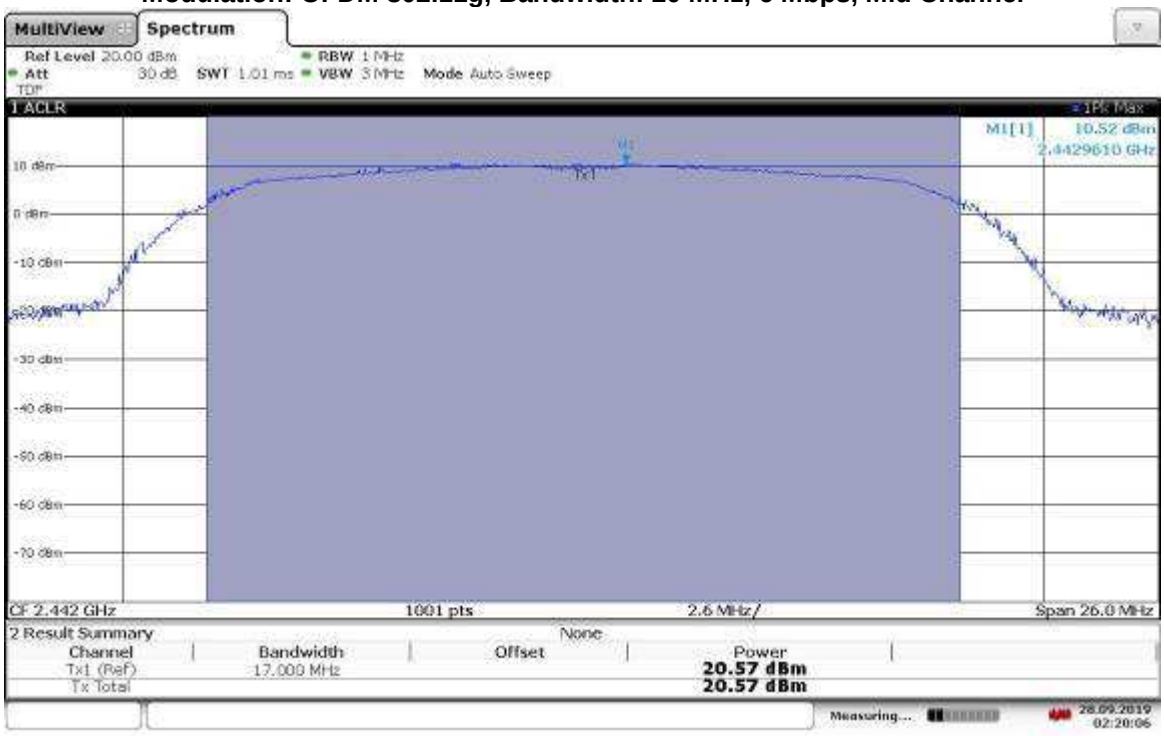
Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 6 Mbps, Mid Channel



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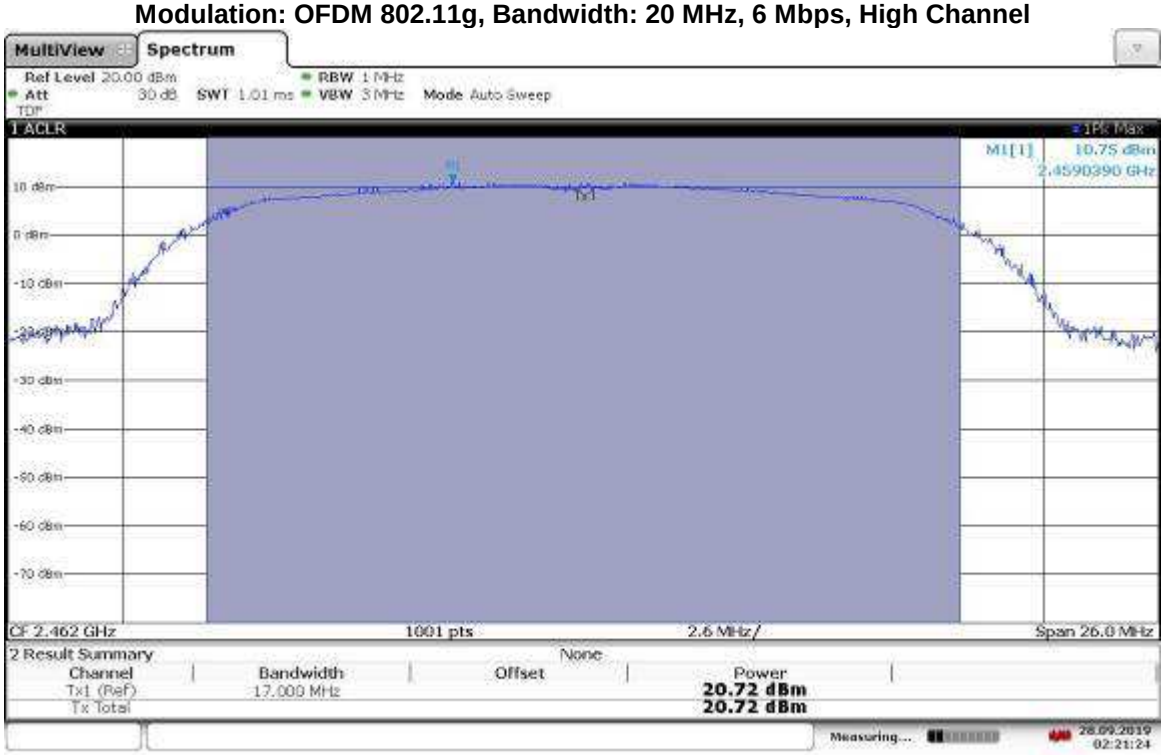
Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 6 Mbps, High Channel



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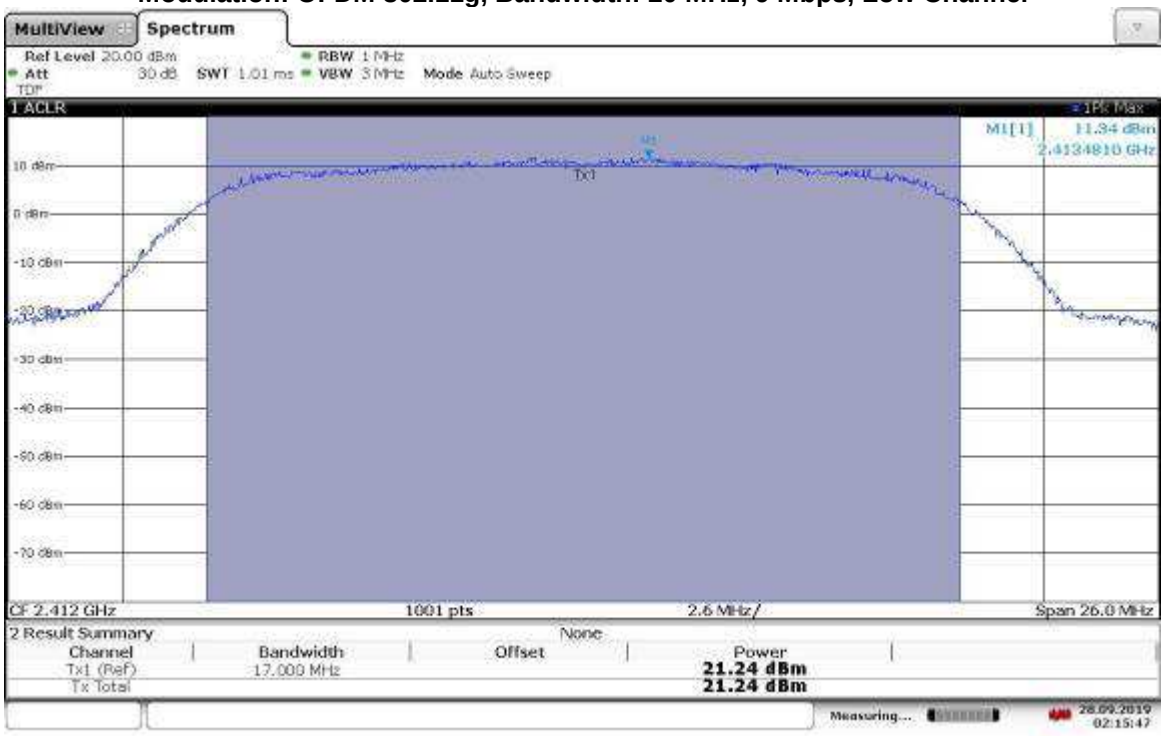
Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 9 Mbps, Low Channel



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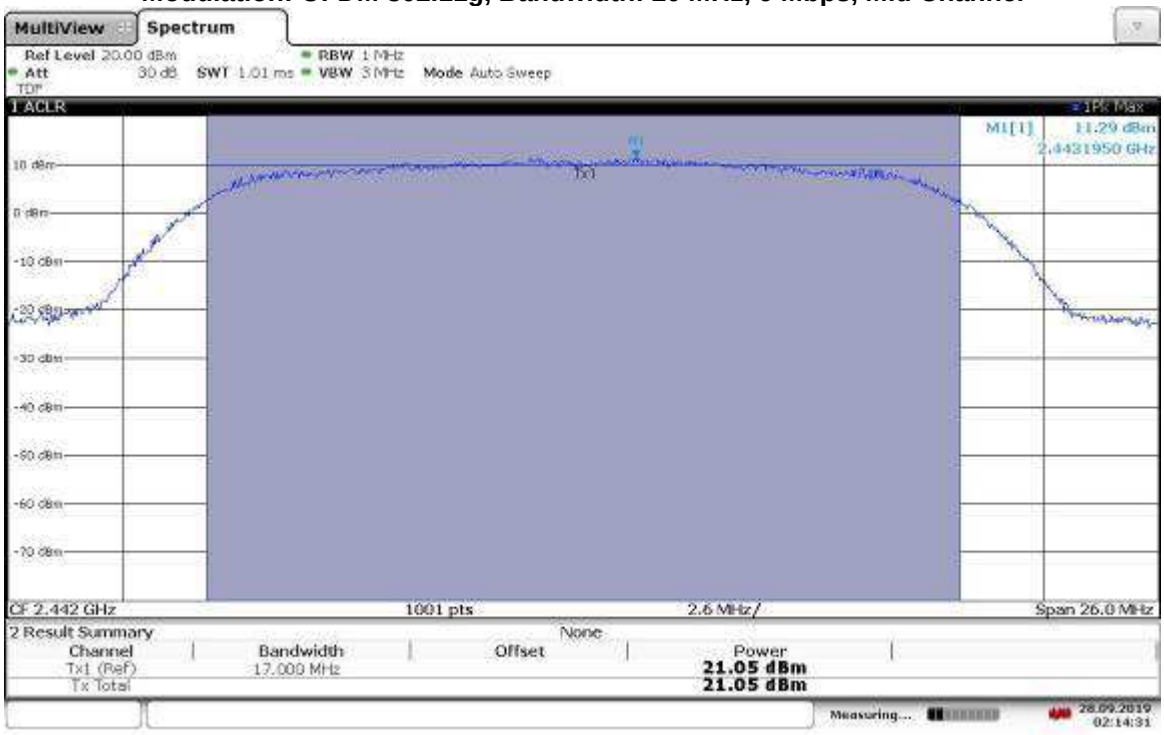
Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 9 Mbps, Mid Channel



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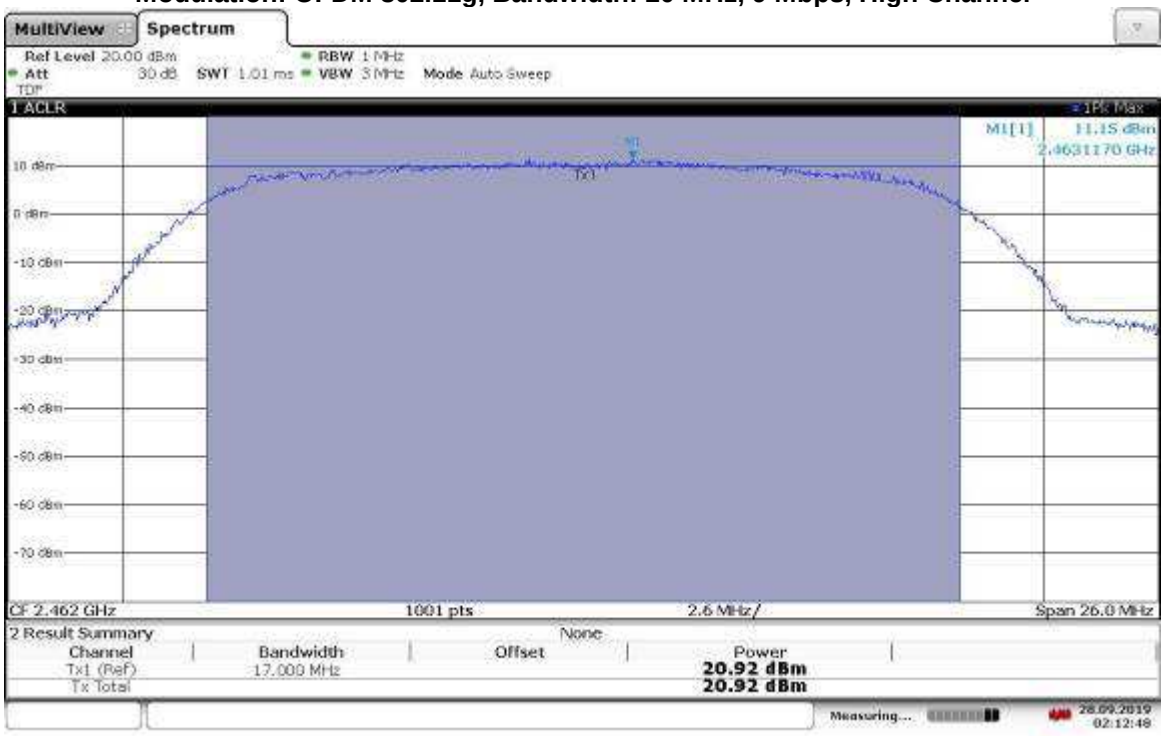
Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 9 Mbps, High Channel



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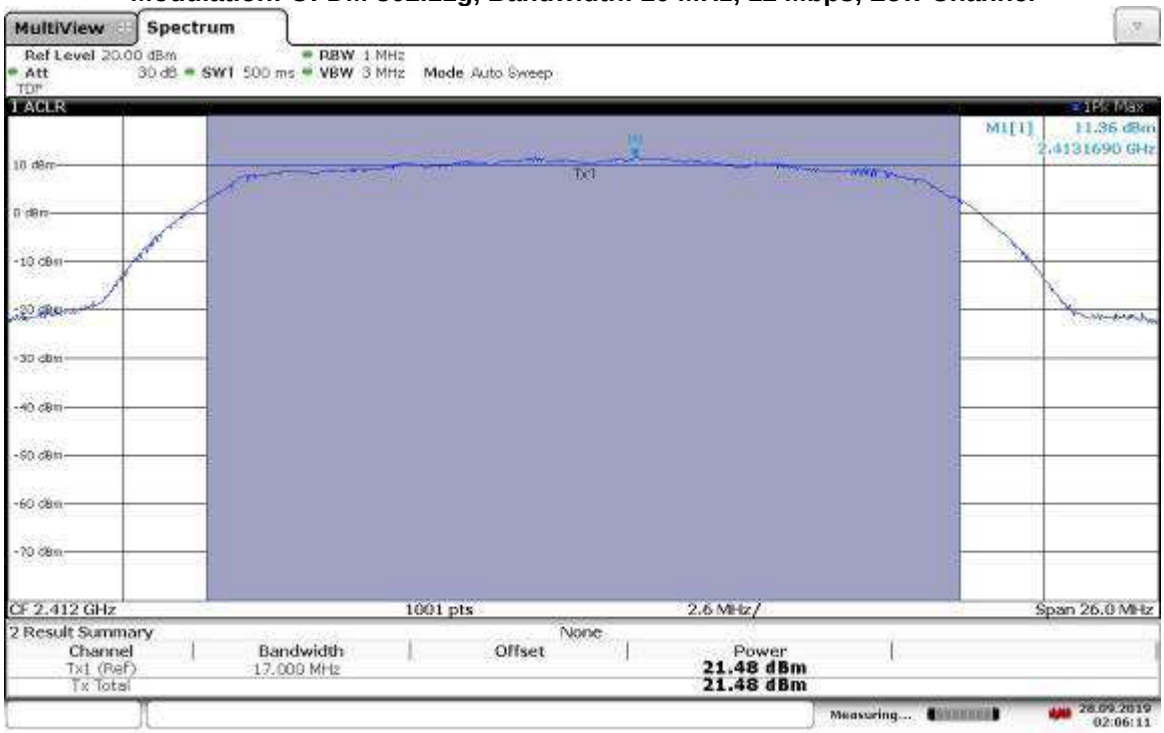
Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 12 Mbps, Low Channel



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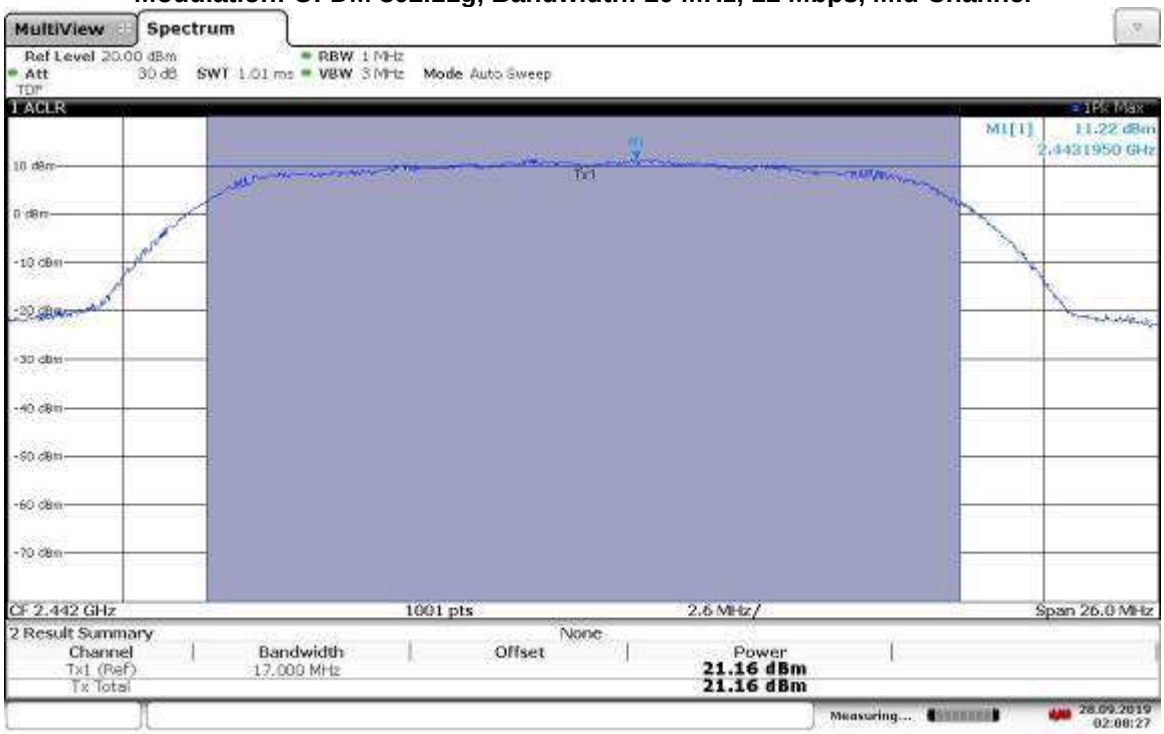
Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 12 Mbps, Mid Channel



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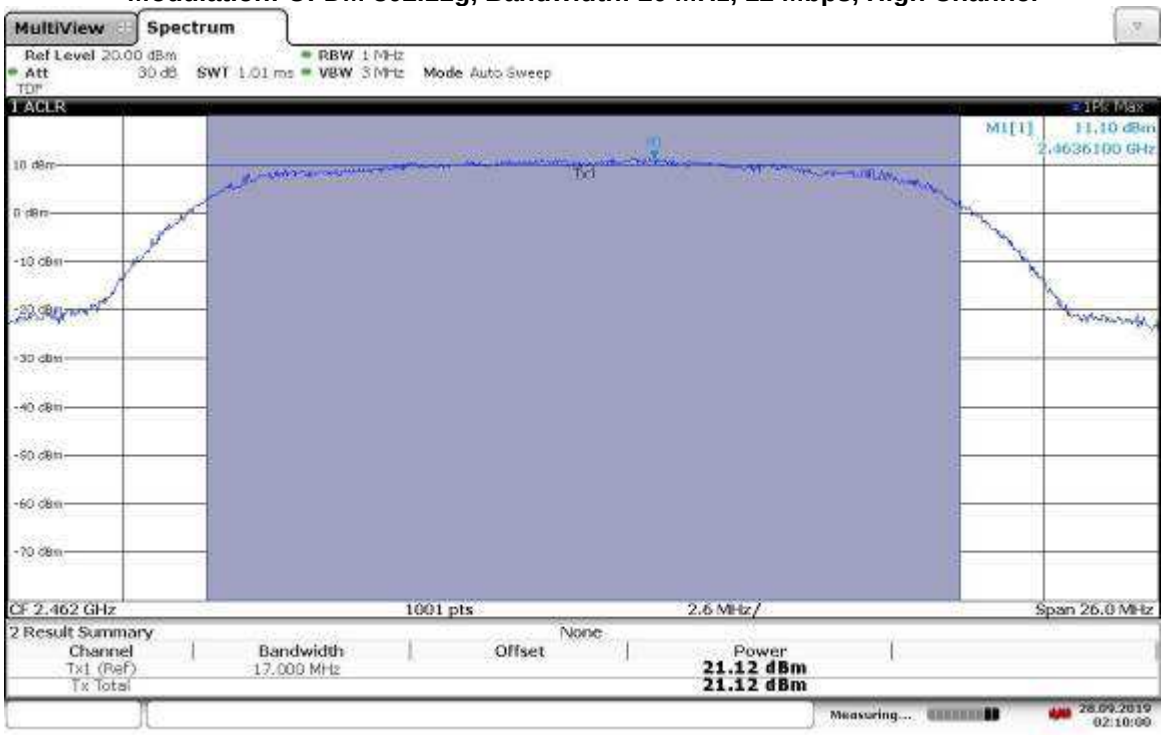
Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 12 Mbps, High Channel



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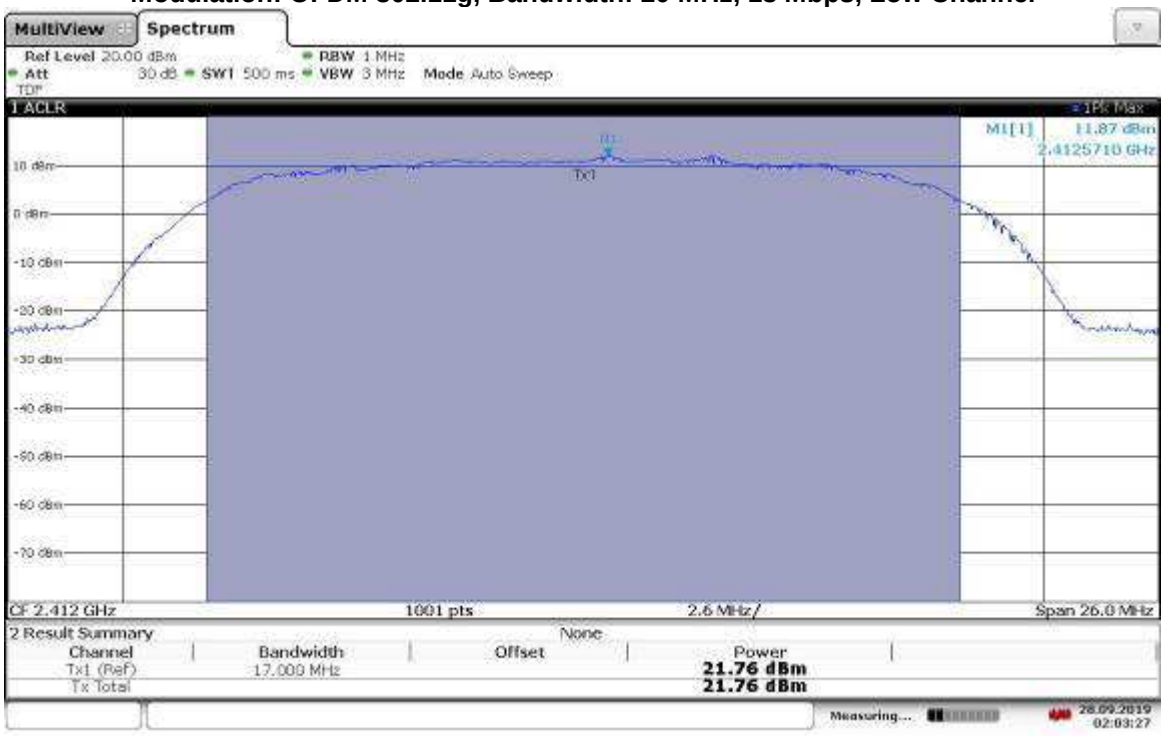
Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 18 Mbps, Low Channel



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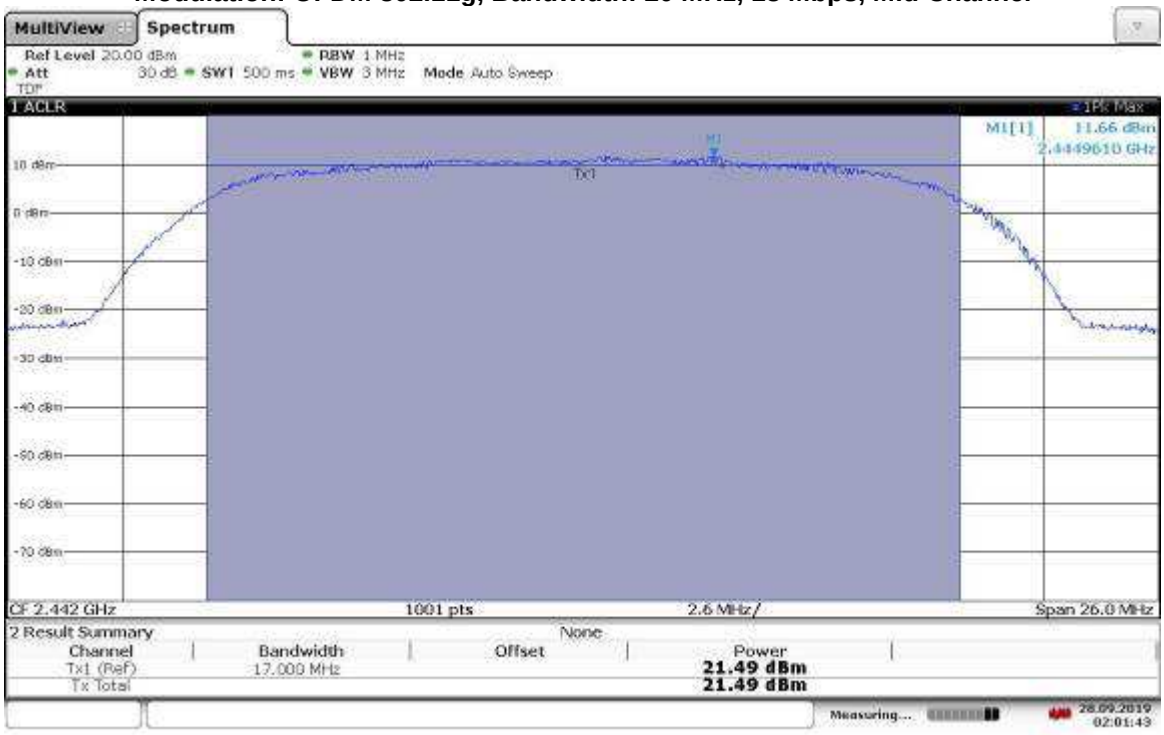
Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 18 Mbps, Mid Channel



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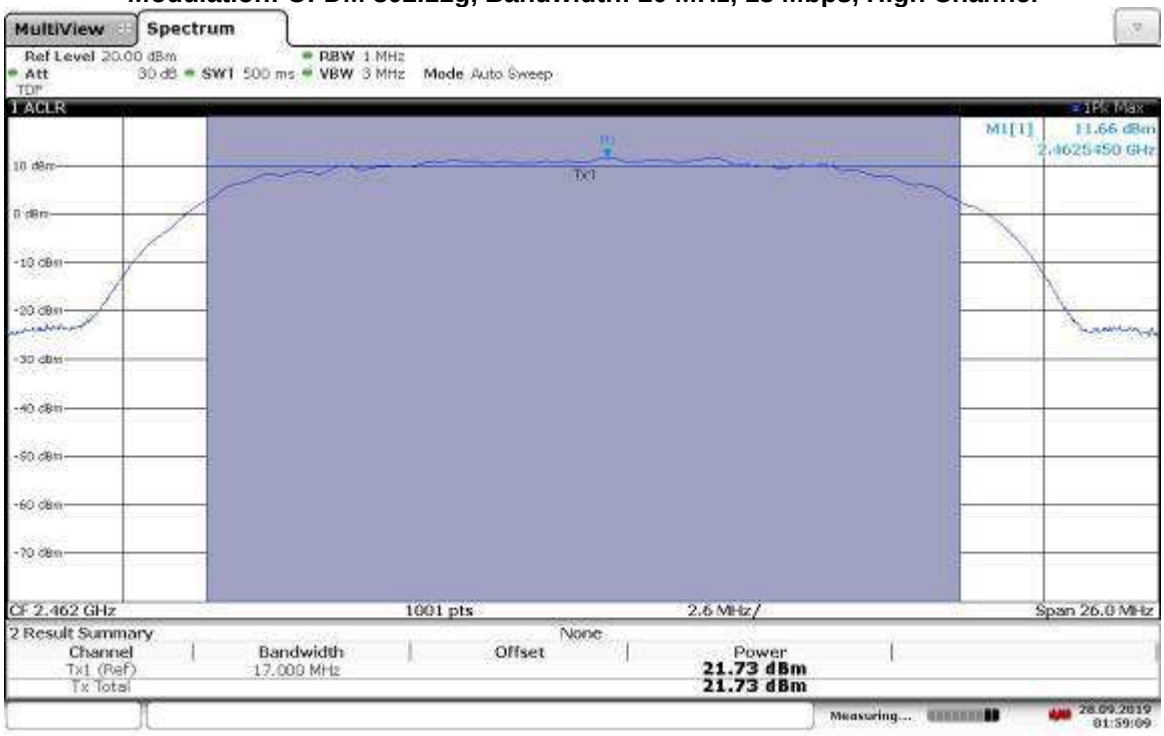
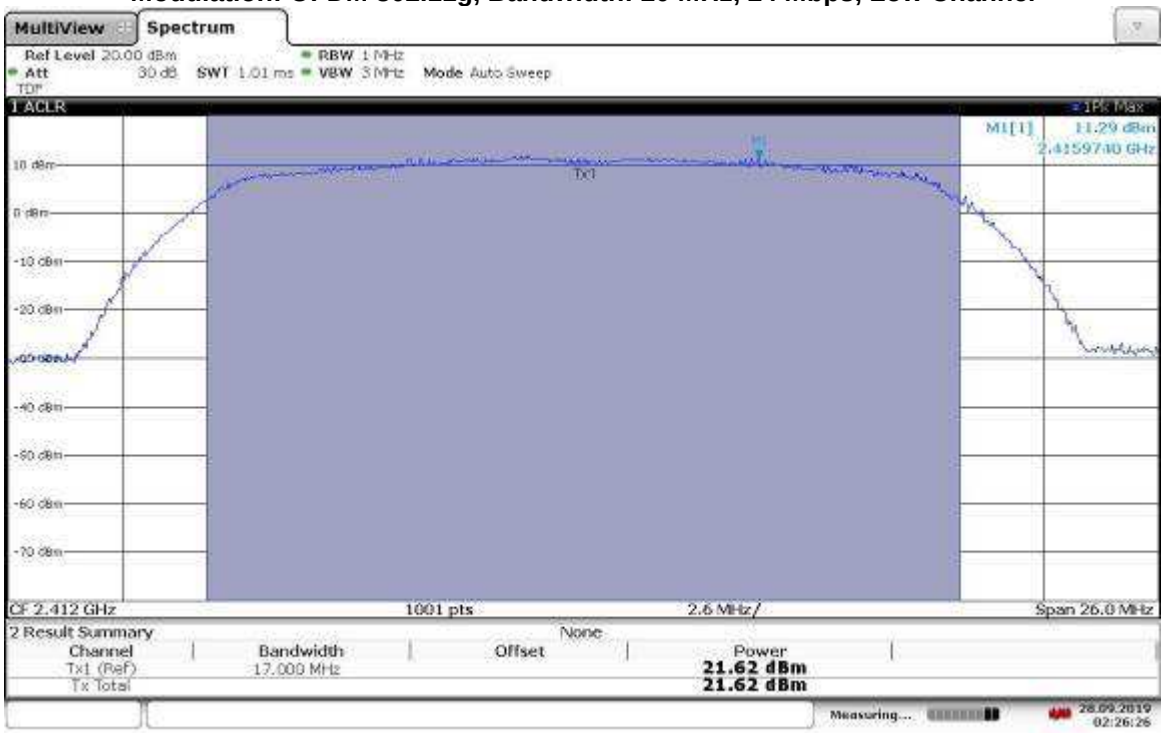
Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 18 Mbps, High Channel



01:59:10 28.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 24 Mbps, Low Channel



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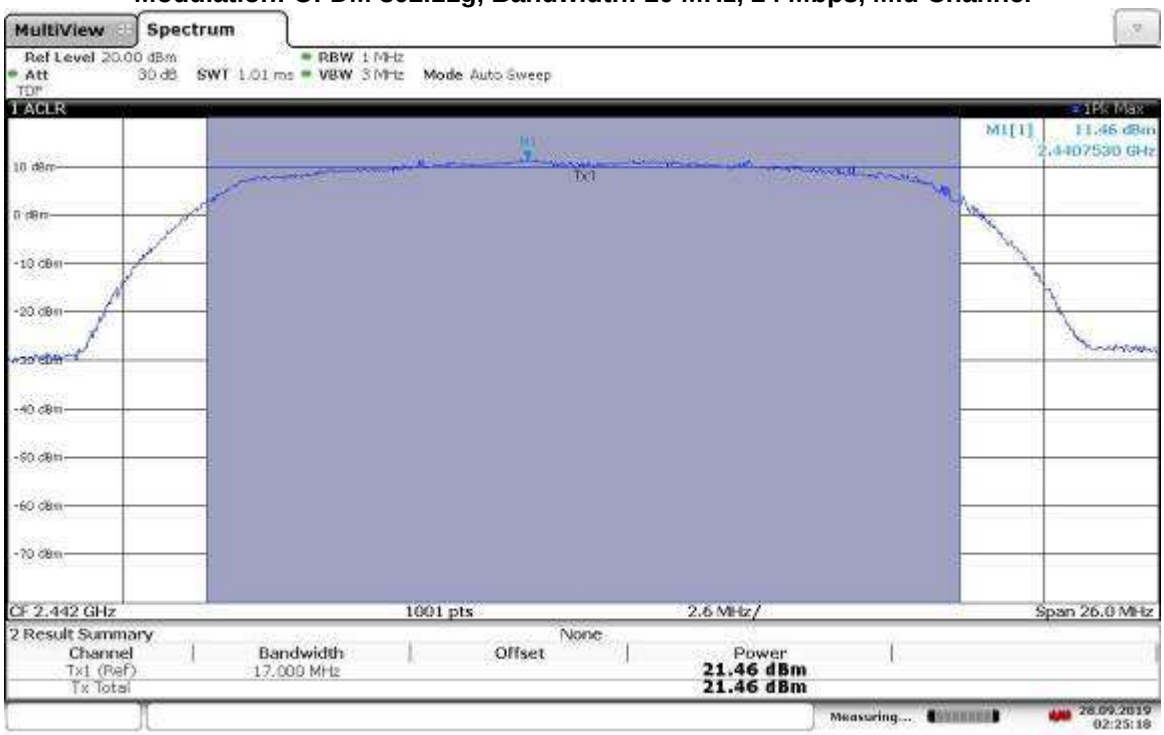

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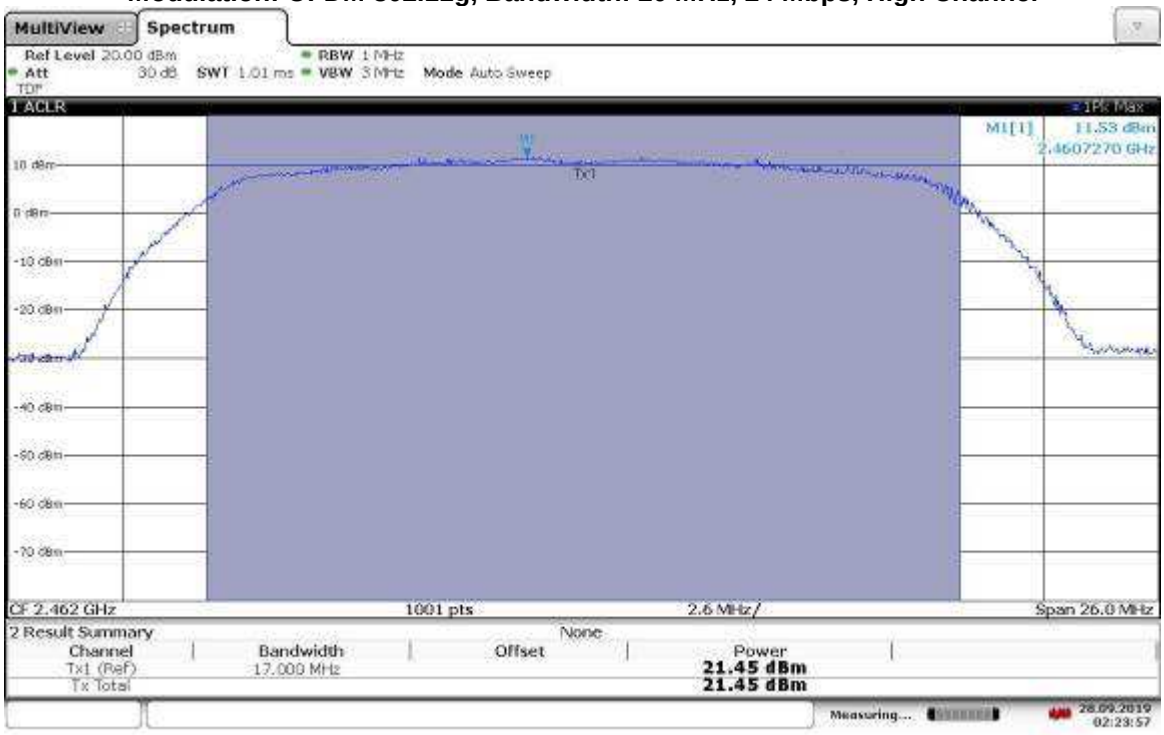
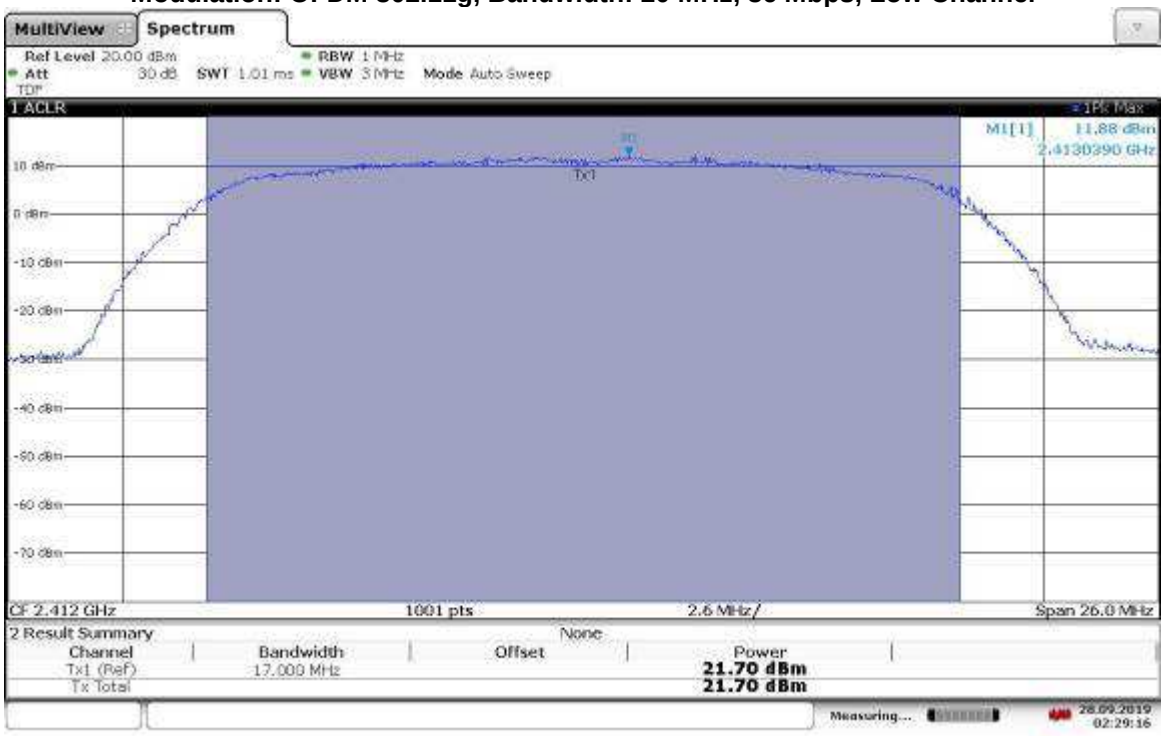
Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 24 Mbps, High Channel



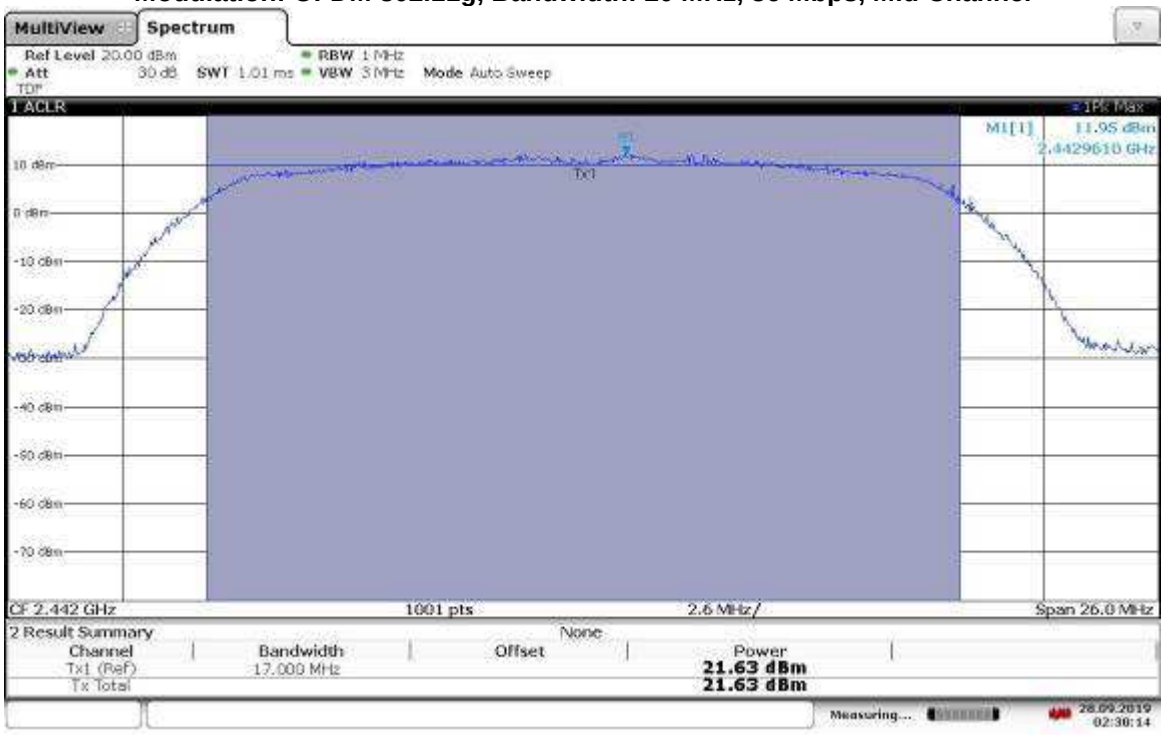
02:23:57 28.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 36 Mbps, Low Channel



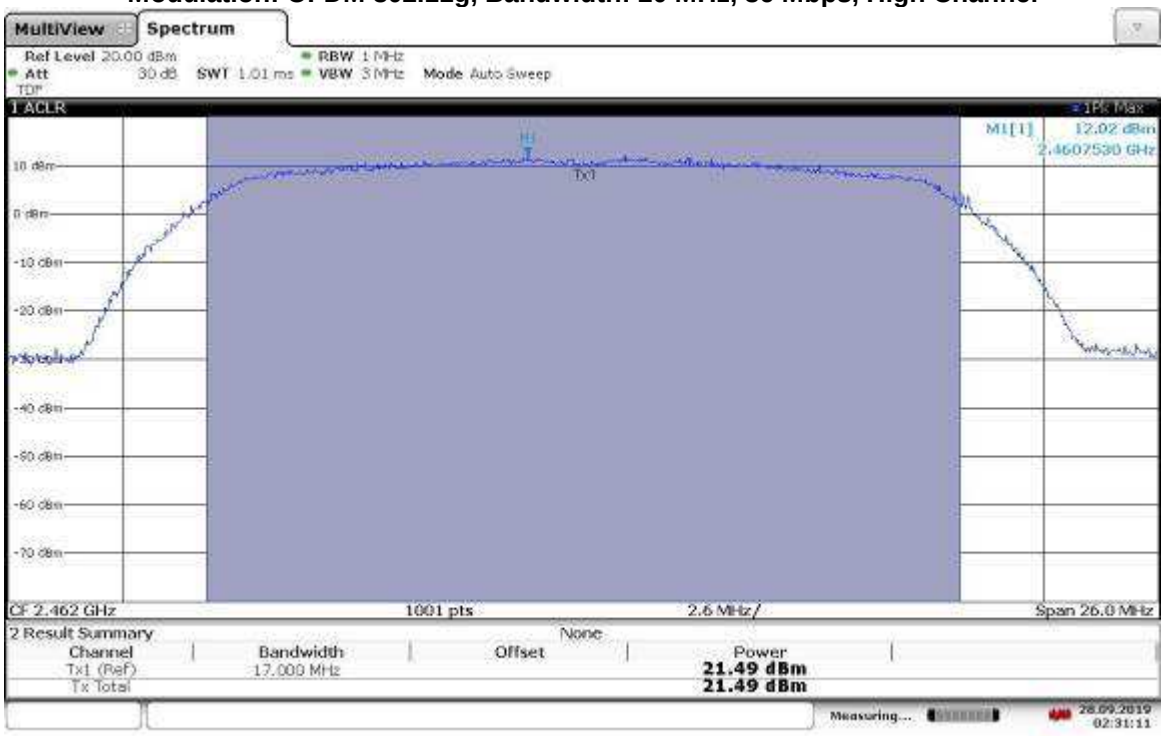
02:29:16 28.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 36 Mbps, Mid Channel



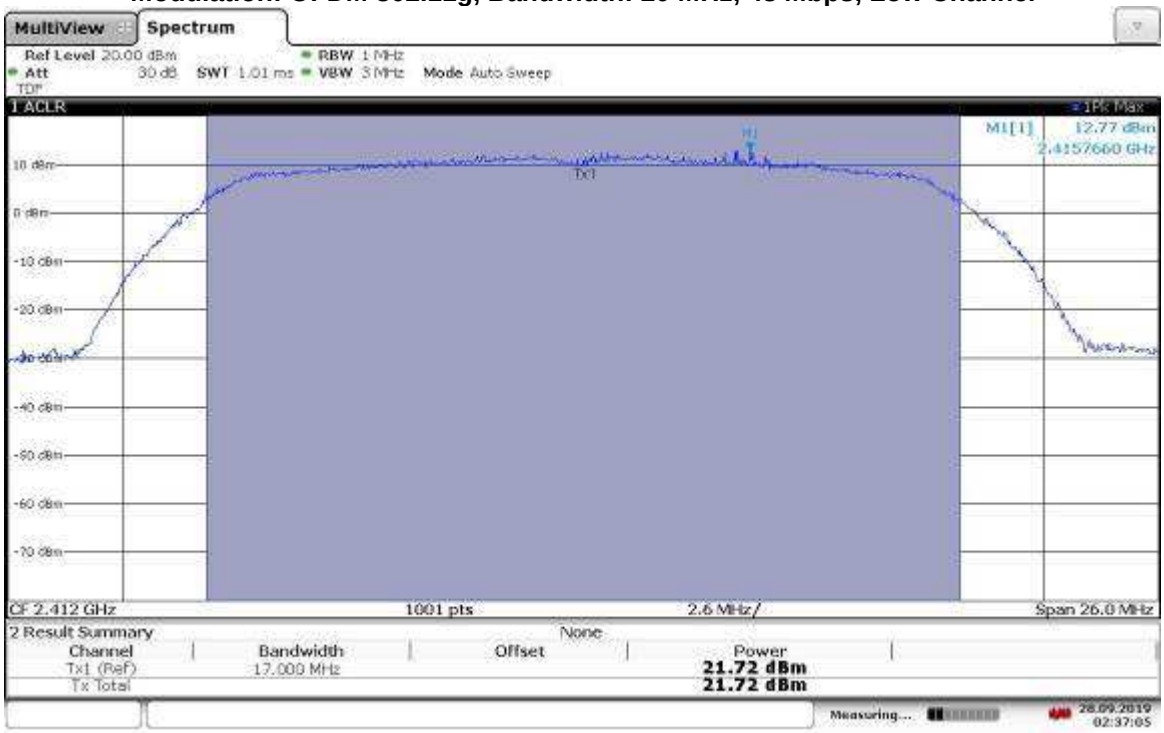
02:30:14 28.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 36 Mbps, High Channel



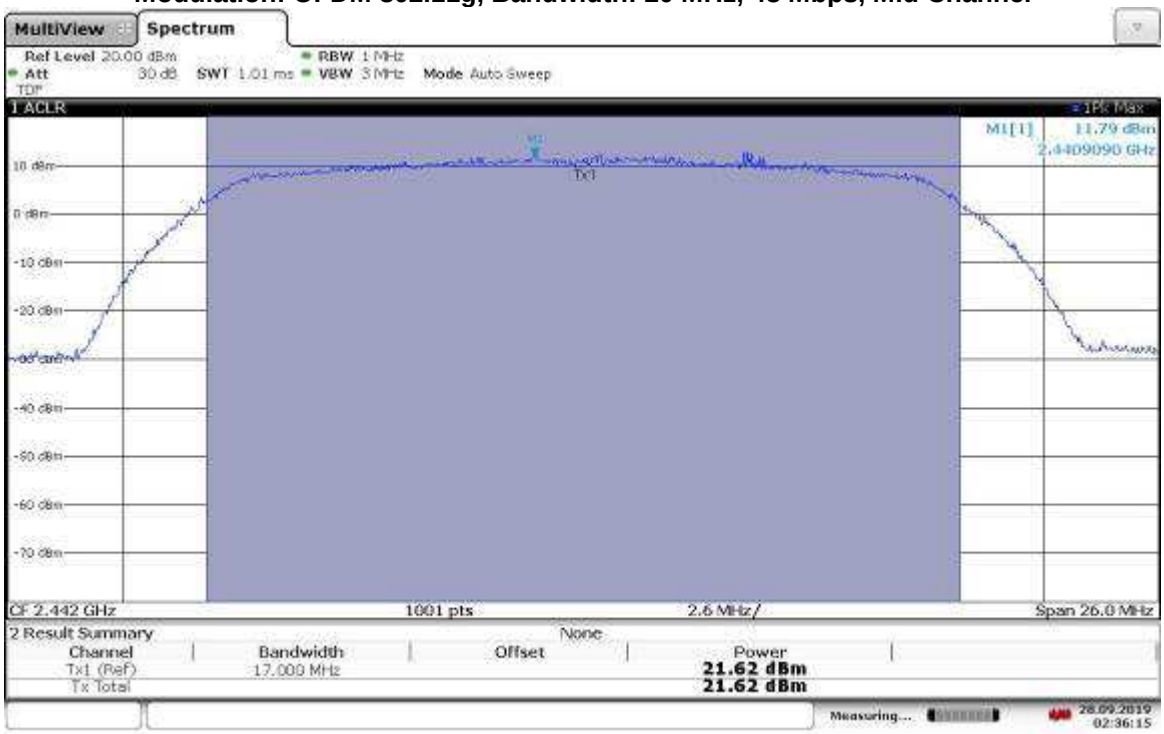
02:31:12 28.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 48 Mbps, Low Channel



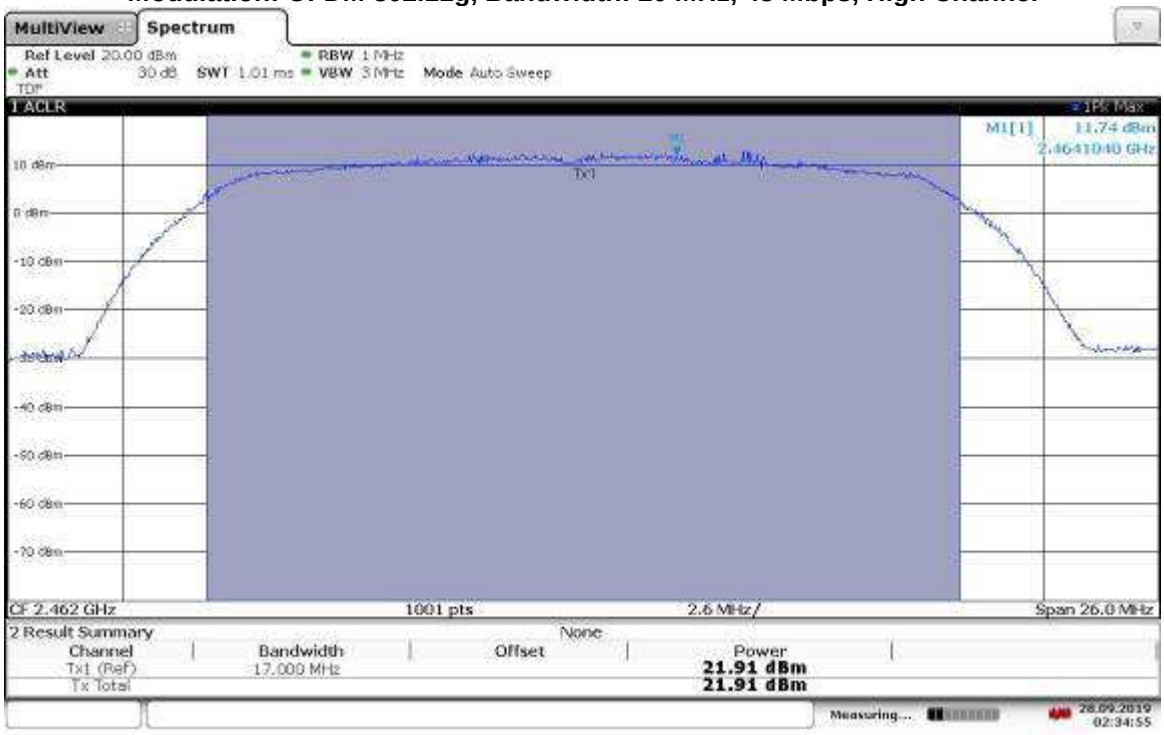
02:37:05 28.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 48 Mbps, Mid Channel



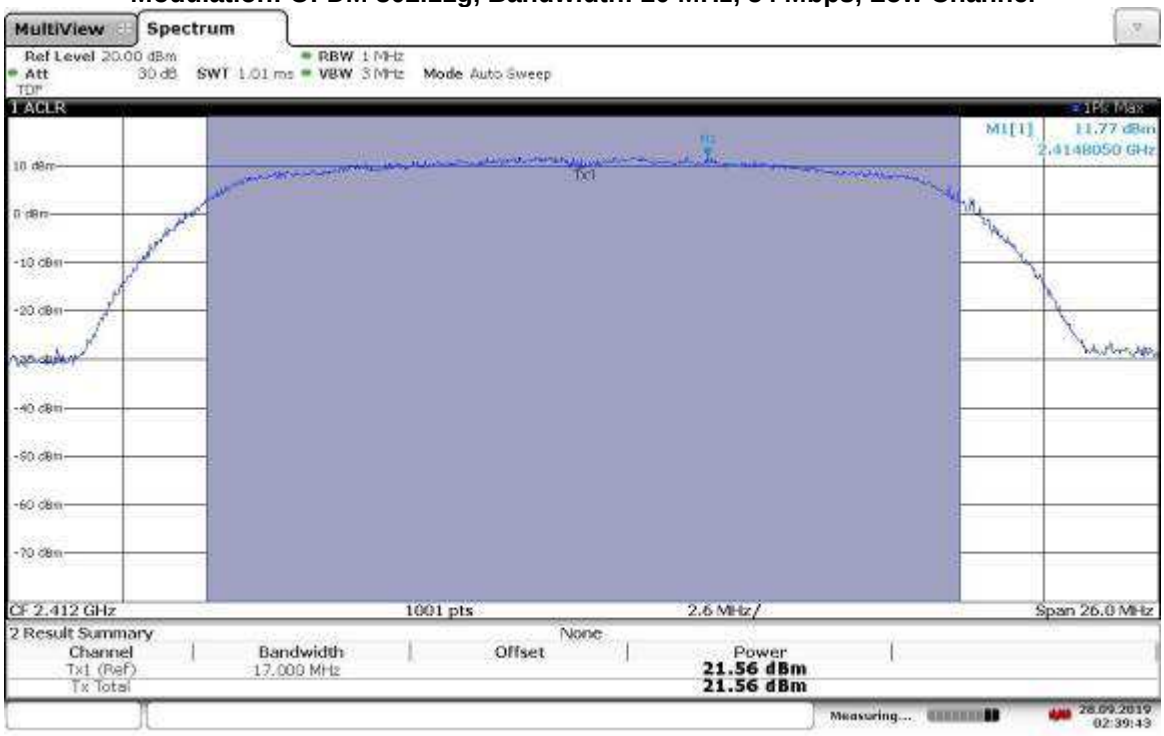
02:36:16 28.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 48 Mbps, High Channel



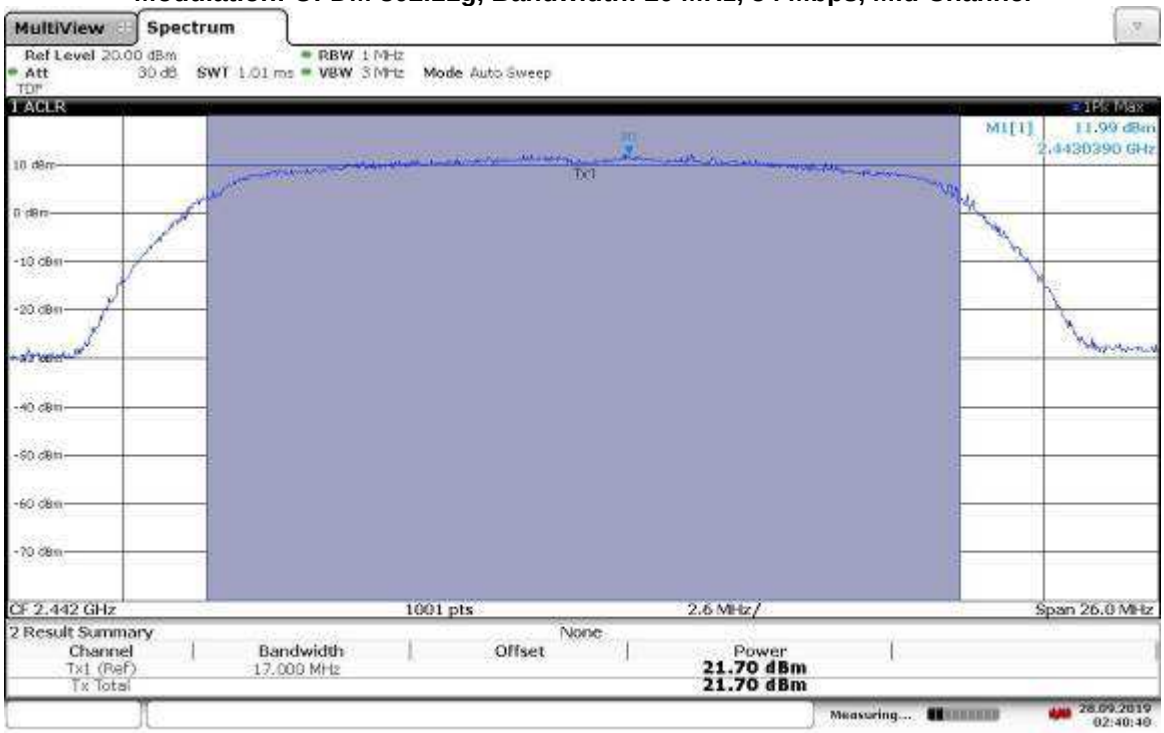
02:34:55 28.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 54 Mbps, Low Channel



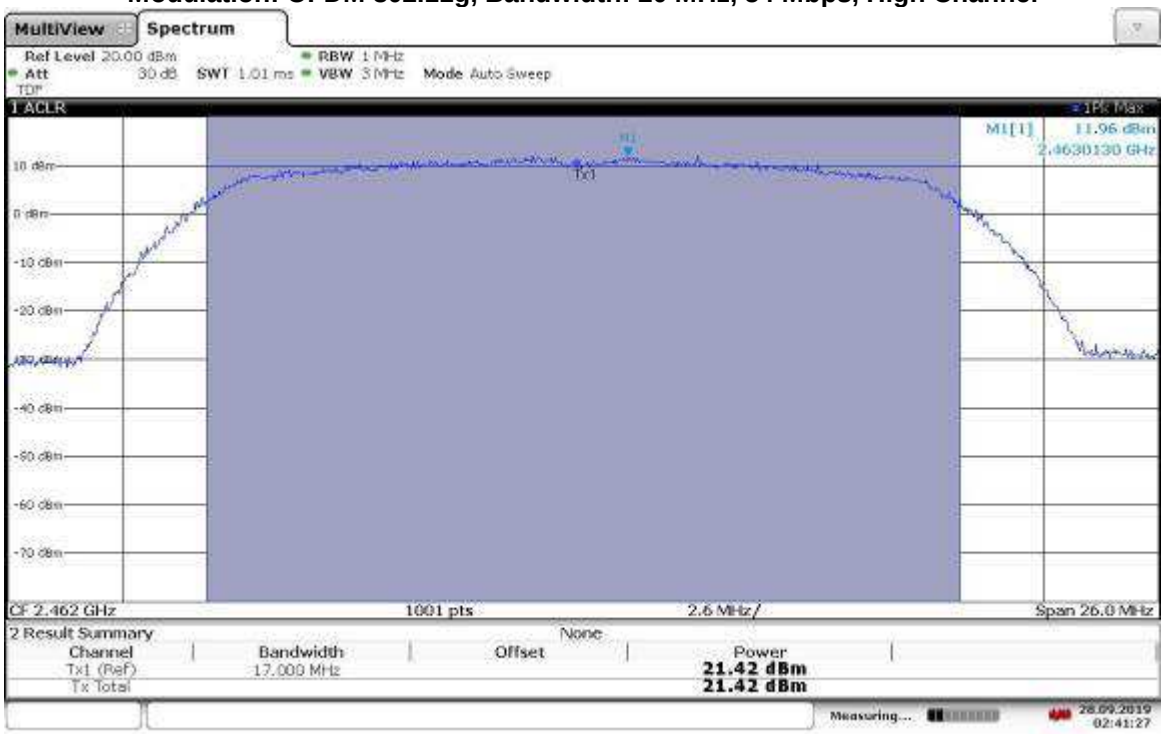
02:39:43 28.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 54 Mbps, Mid Channel



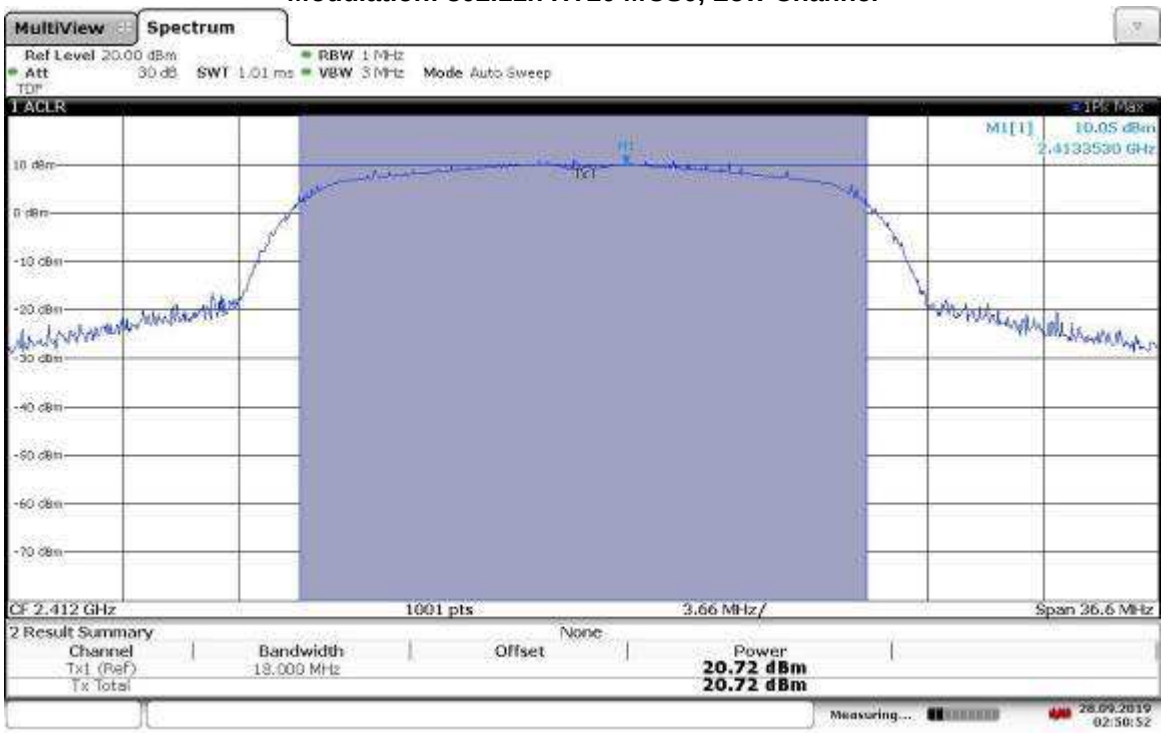
02:40:41 28.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 54 Mbps, High Channel



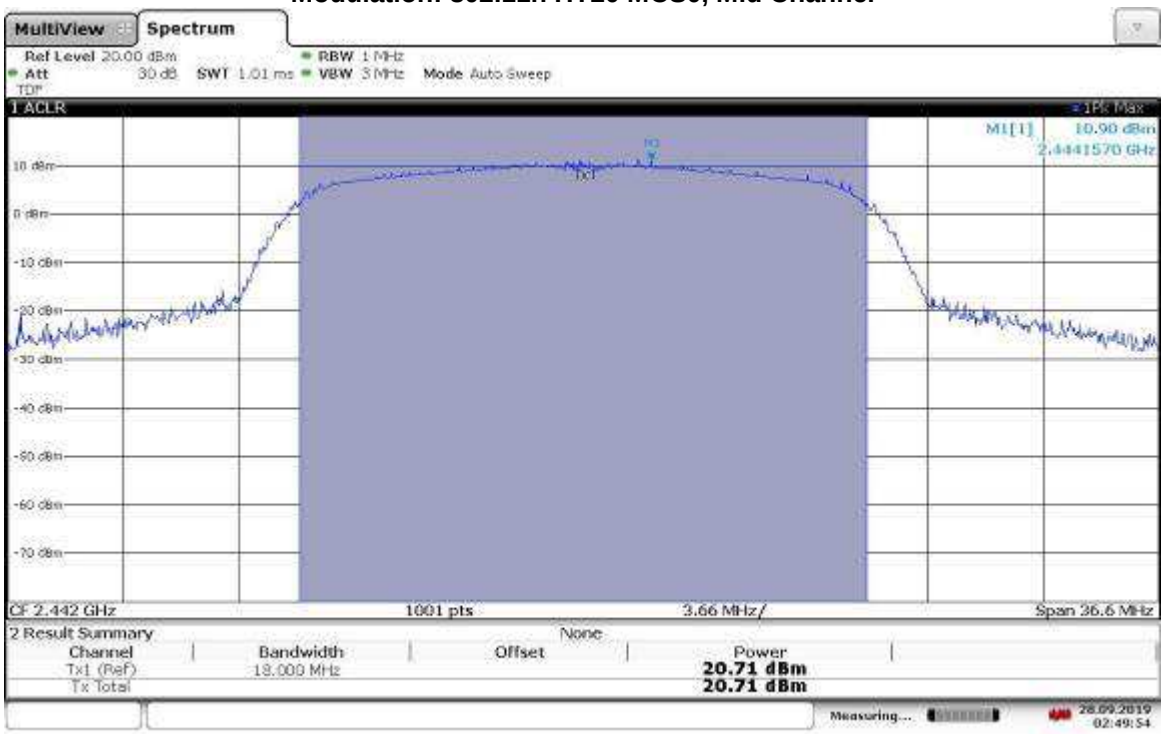
02:41:27 28.09.2019

Modulation: 802.11n HT20 MCS0, Low Channel



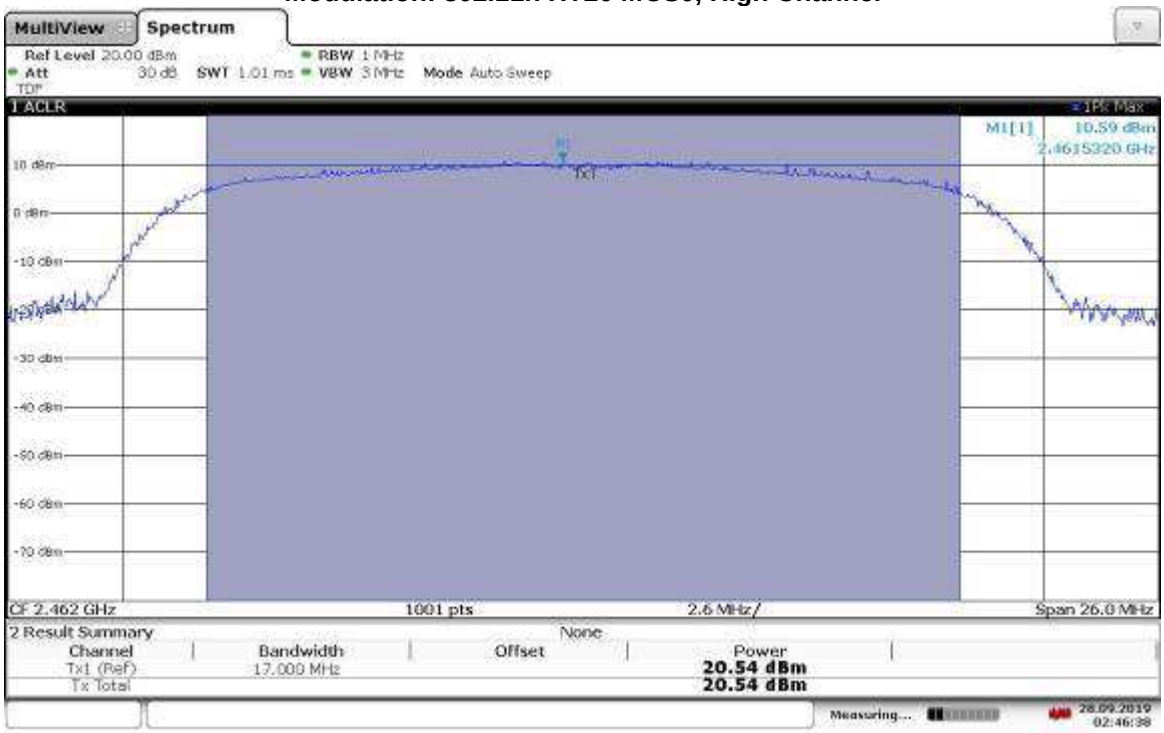
02:50:52 28.09.2019

Modulation: 802.11n HT20 MCS0, Mid Channel



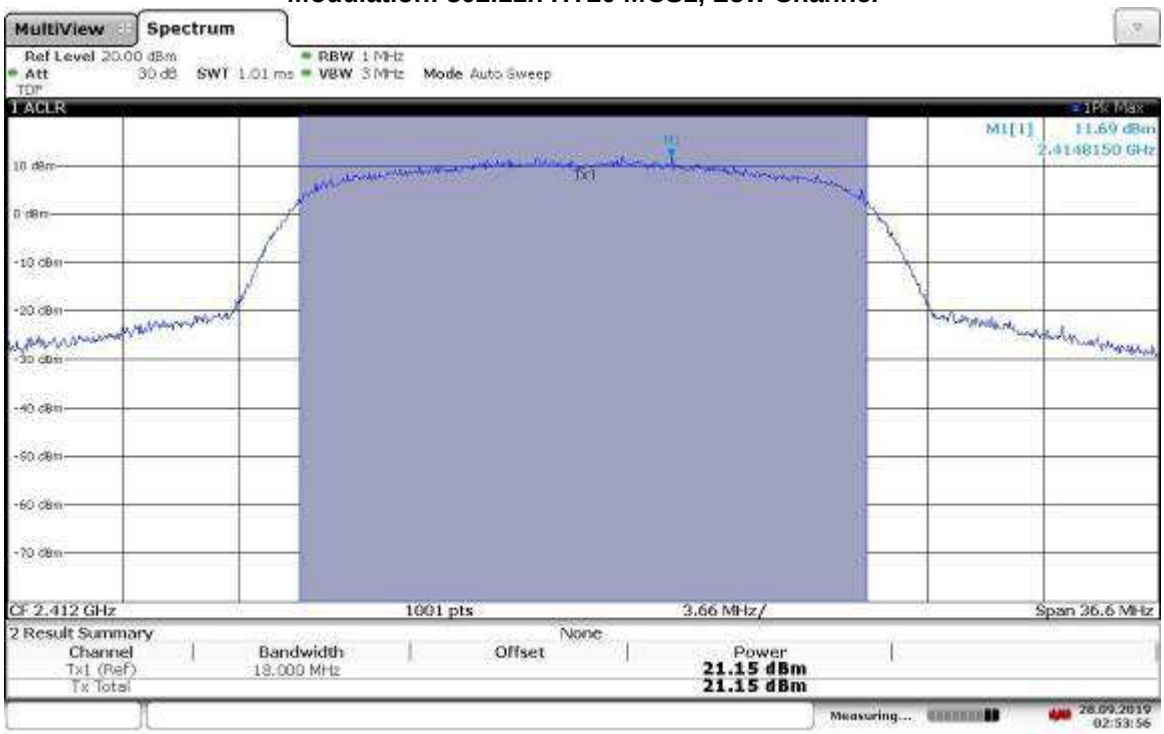
02:49:54 28.09.2019

Modulation: 802.11n HT20 MCS0, High Channel



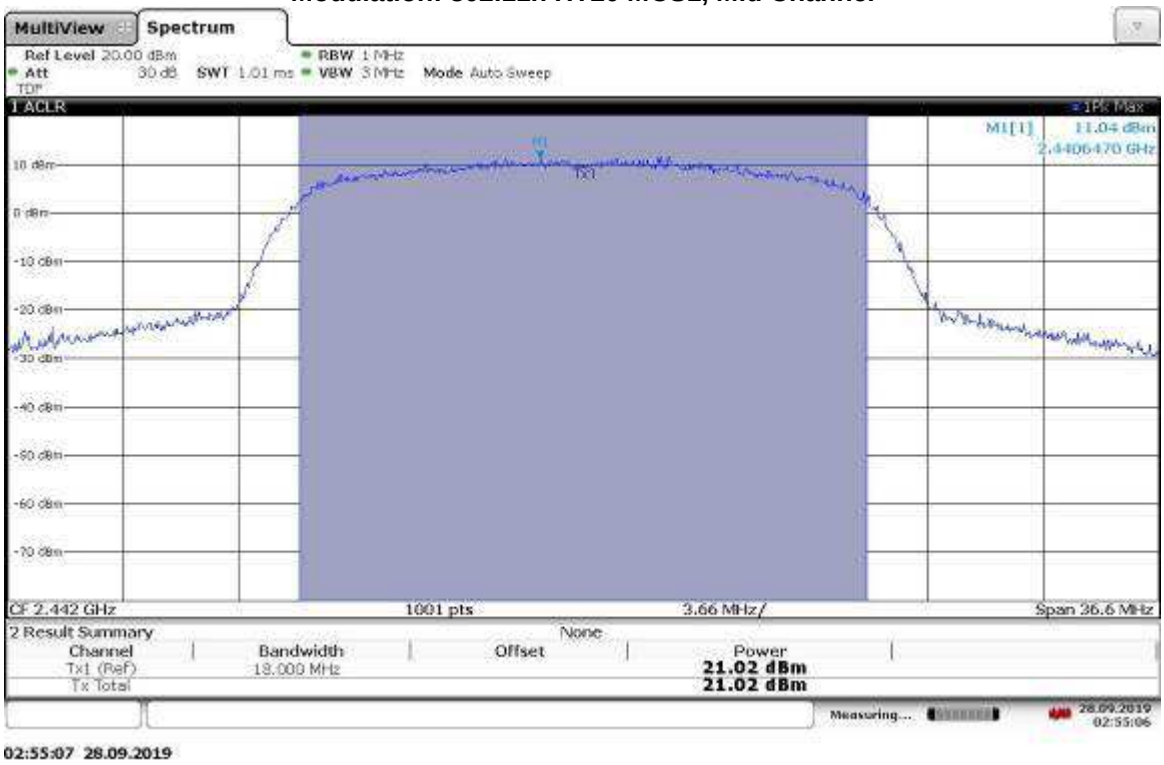
02:46:39 28.09.2019

Modulation: 802.11n HT20 MCS1, Low Channel



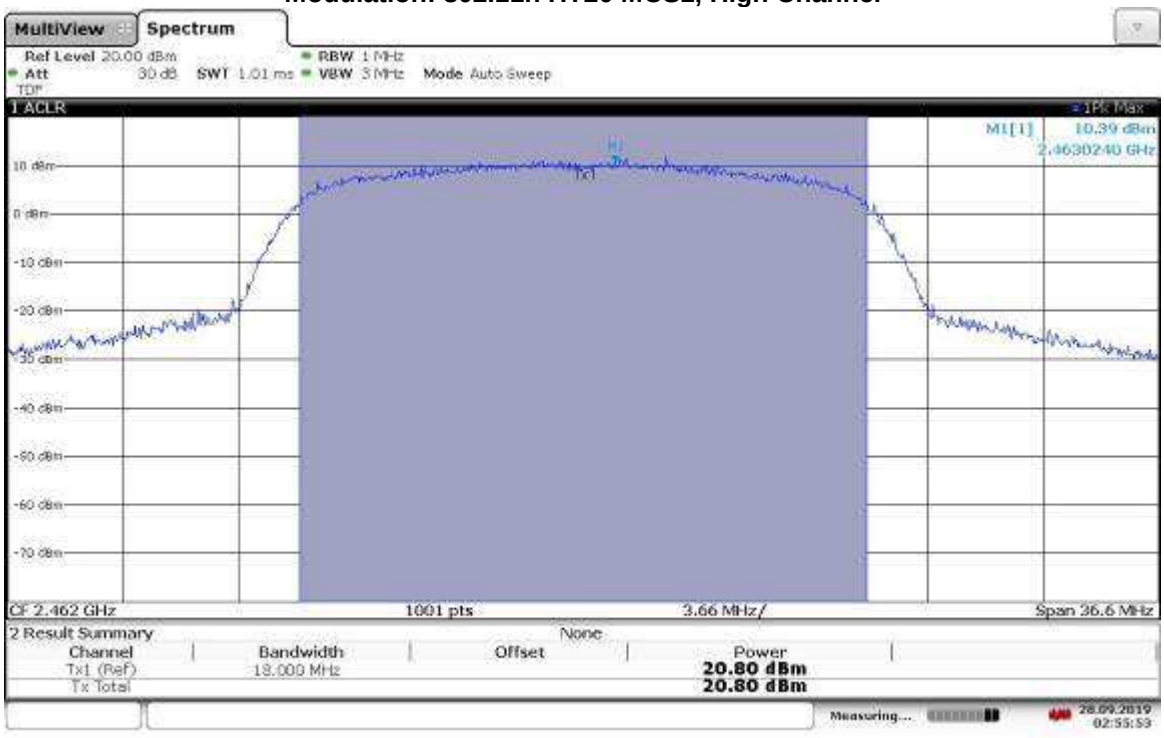
02:53:56 28.09.2019

Modulation: 802.11n HT20 MCS1, Mid Channel



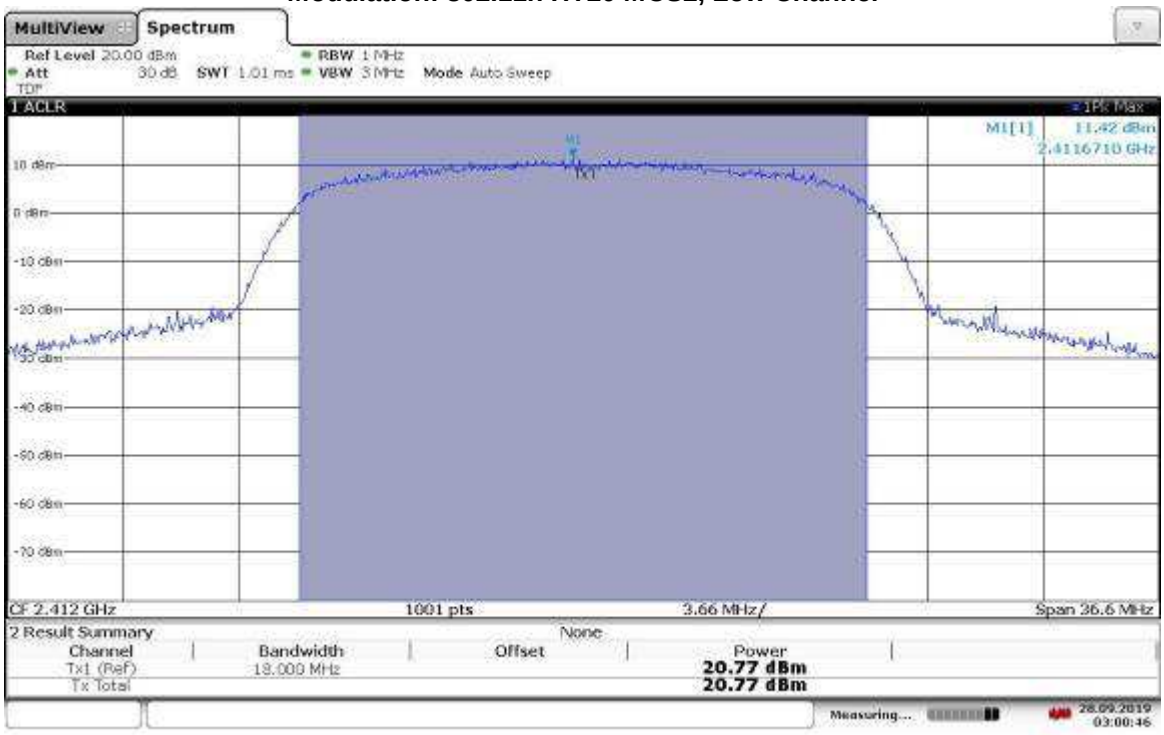
02:55:07 28.09.2019

Modulation: 802.11n HT20 MCS1, High Channel



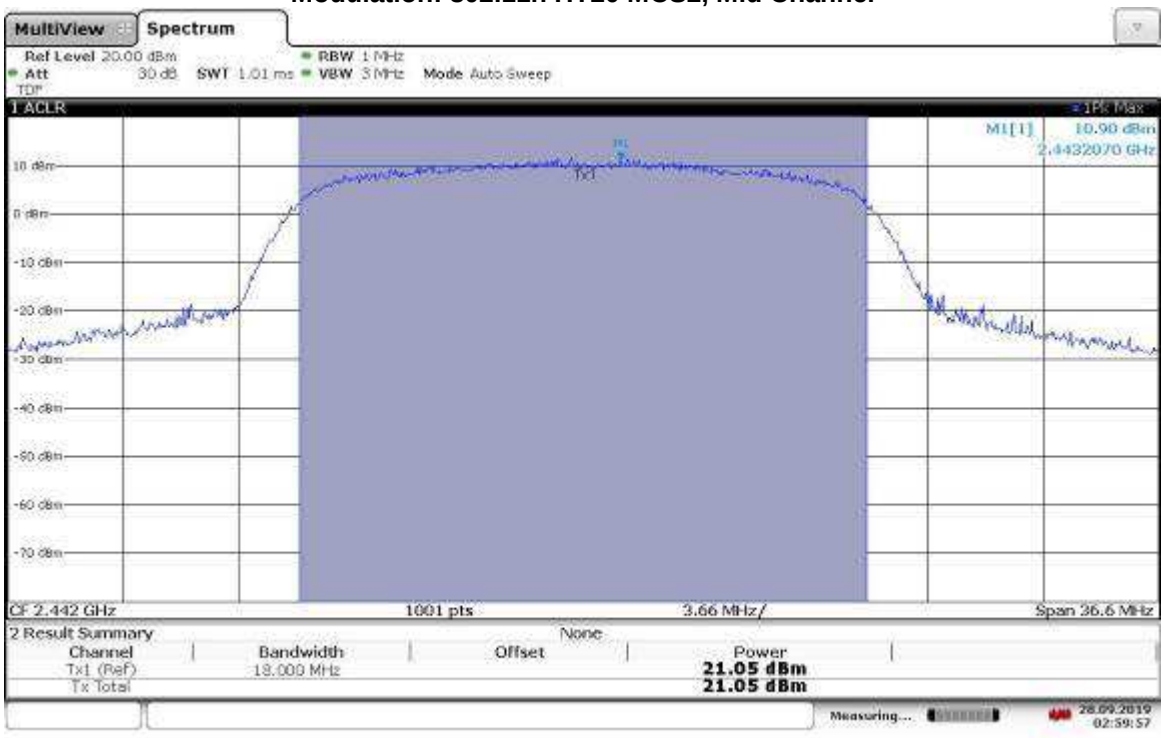
02:55:53 28.09.2019

Modulation: 802.11n HT20 MCS2, Low Channel



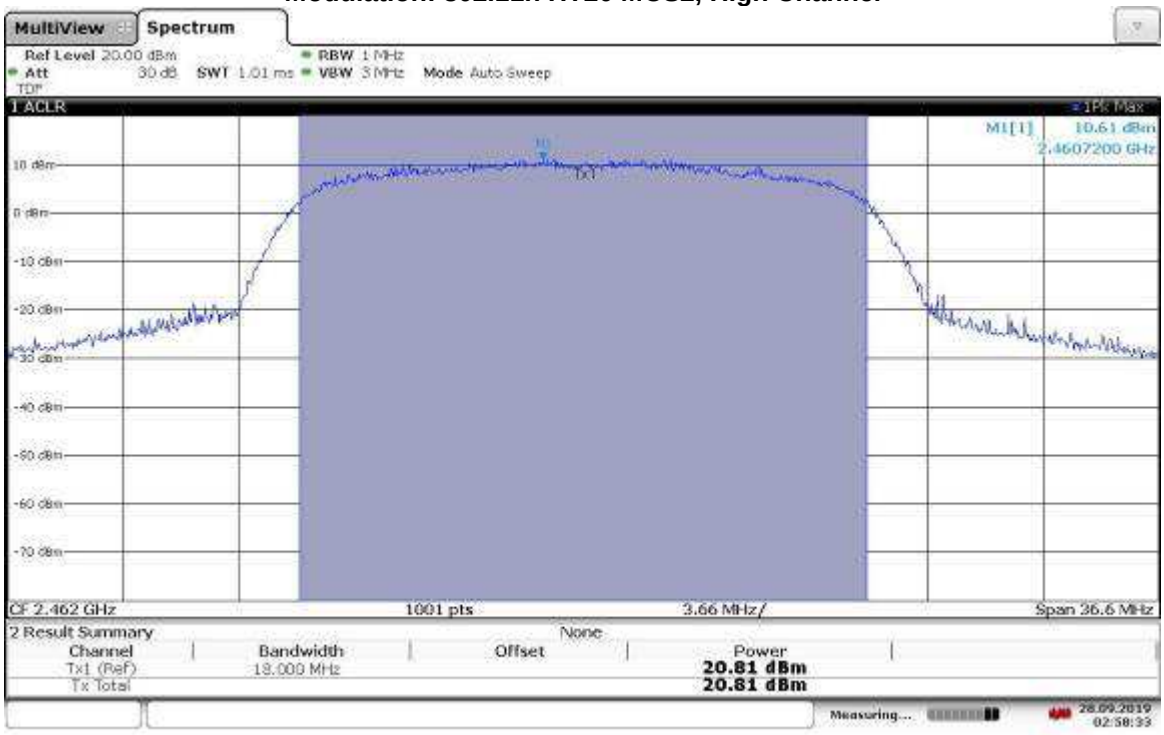
03:00:46 28.09.2019

Modulation: 802.11n HT20 MCS2, Mid Channel



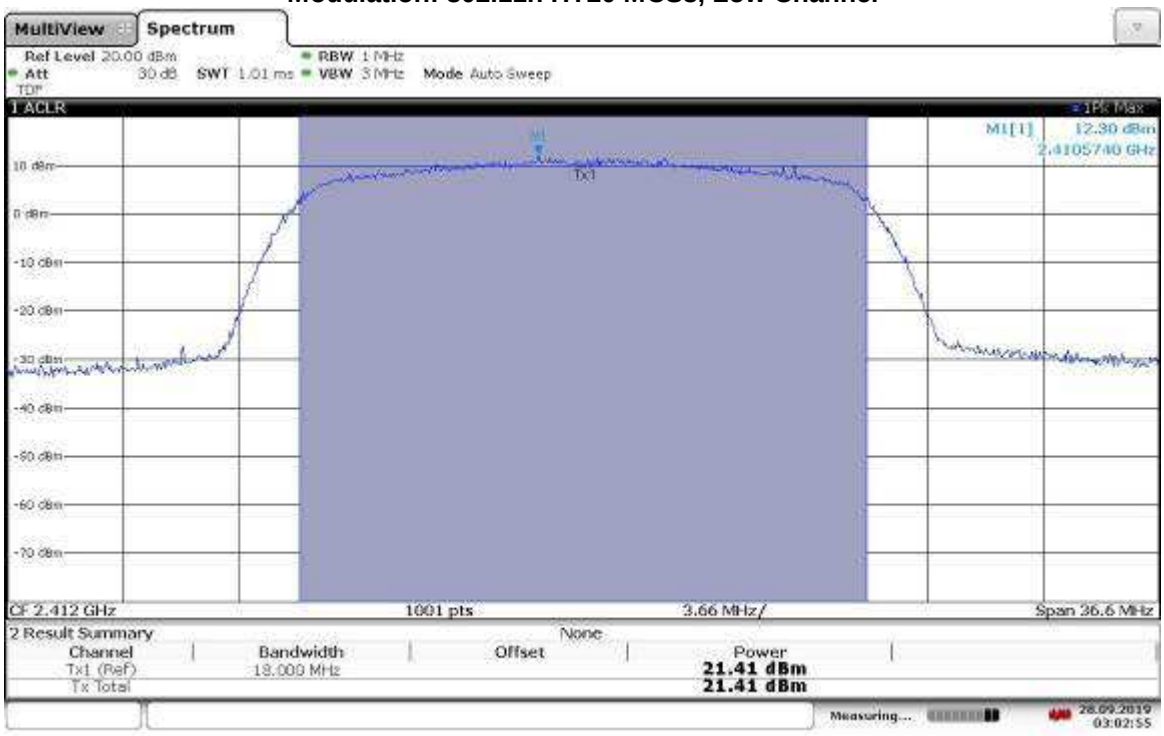
02:59:58 28.09.2019

Modulation: 802.11n HT20 MCS2, High Channel



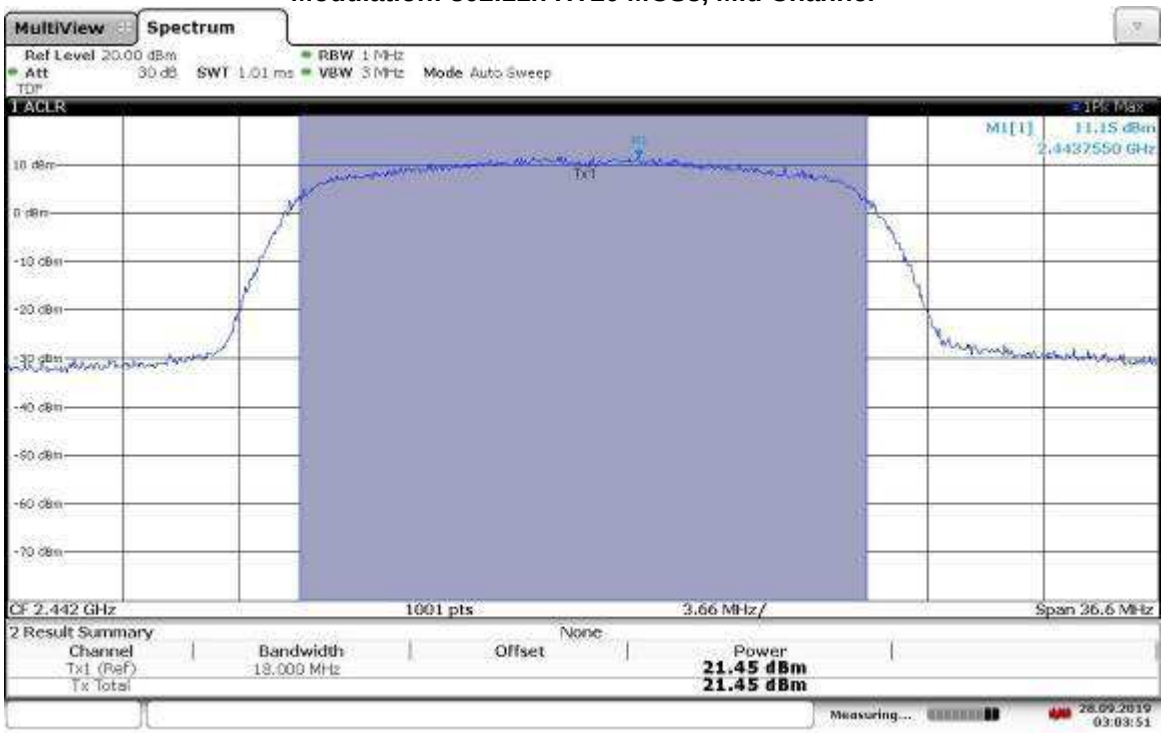
02:58:33 28.09.2019

Modulation: 802.11n HT20 MCS3, Low Channel



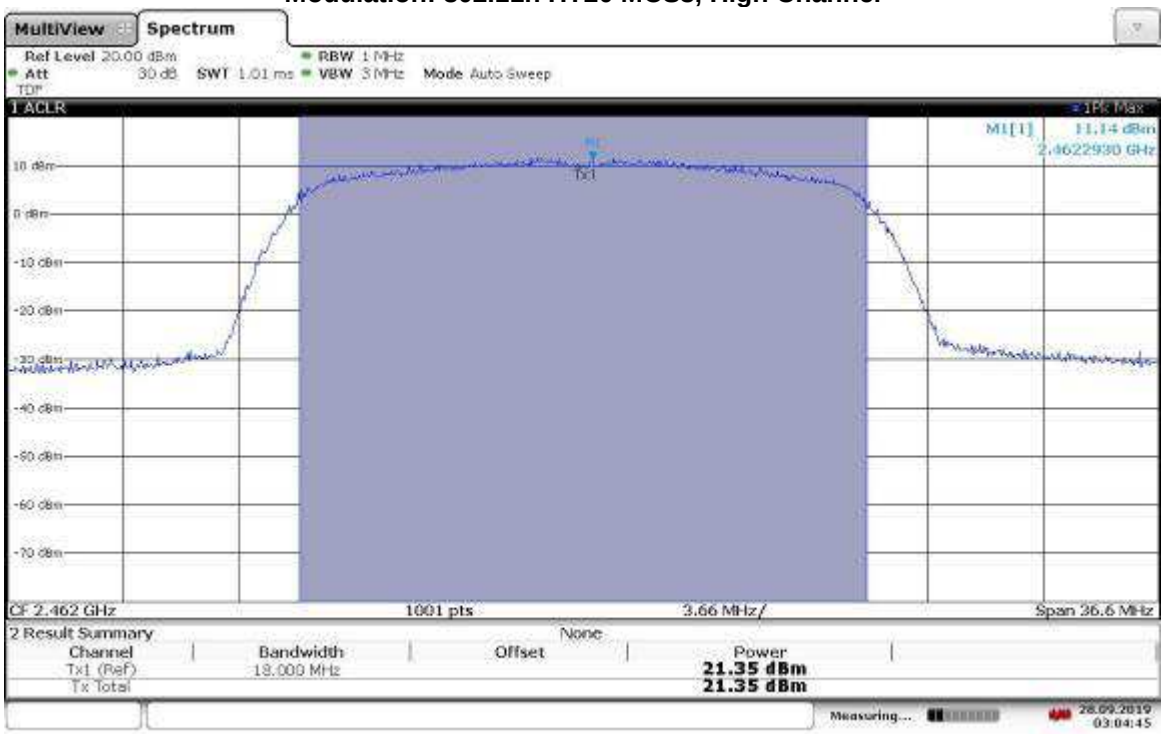
03:02:56 28.09.2019

Modulation: 802.11n HT20 MCS3, Mid Channel



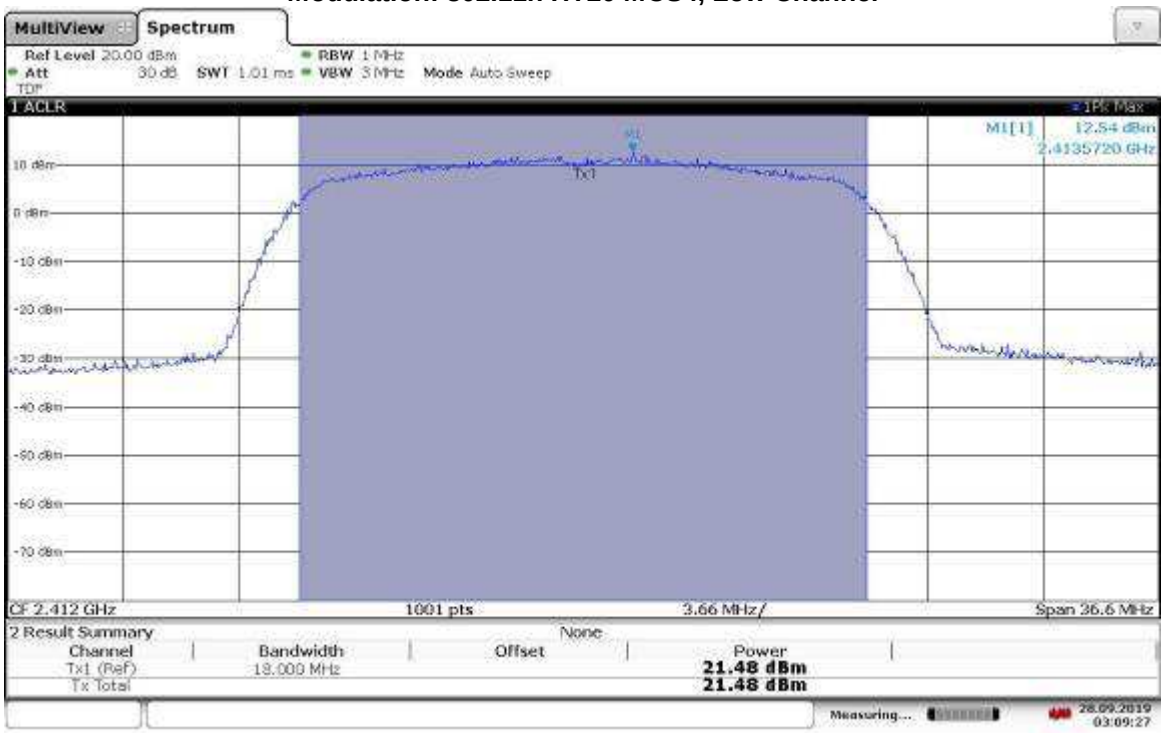
03:03:52 28.09.2019

Modulation: 802.11n HT20 MCS3, High Channel



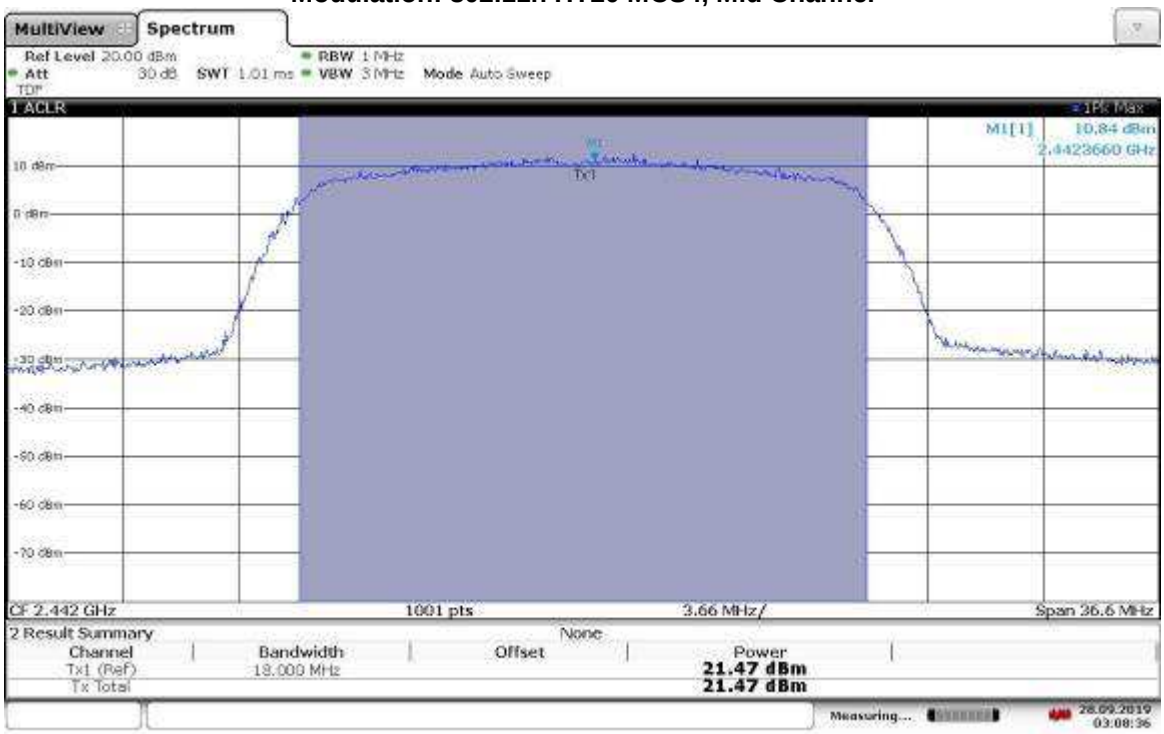
03:04:46 28.09.2019

Modulation: 802.11n HT20 MCS4, Low Channel



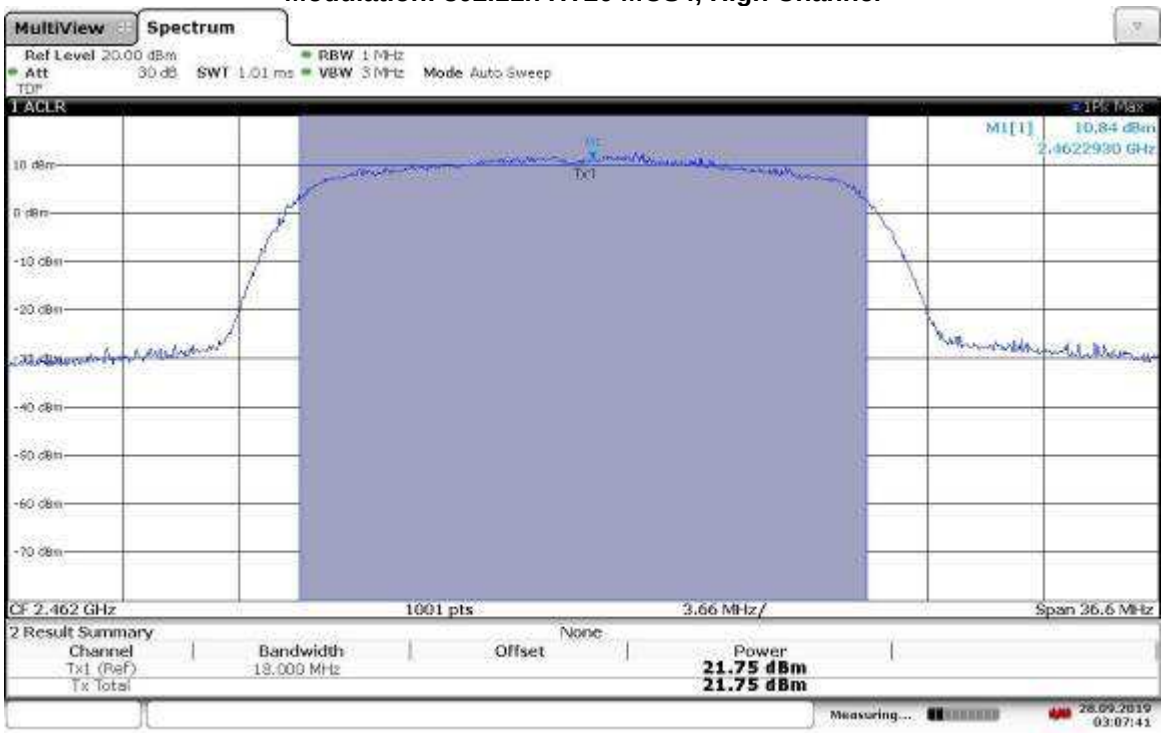
03:09:27 28.09.2019

Modulation: 802.11n HT20 MCS4, Mid Channel



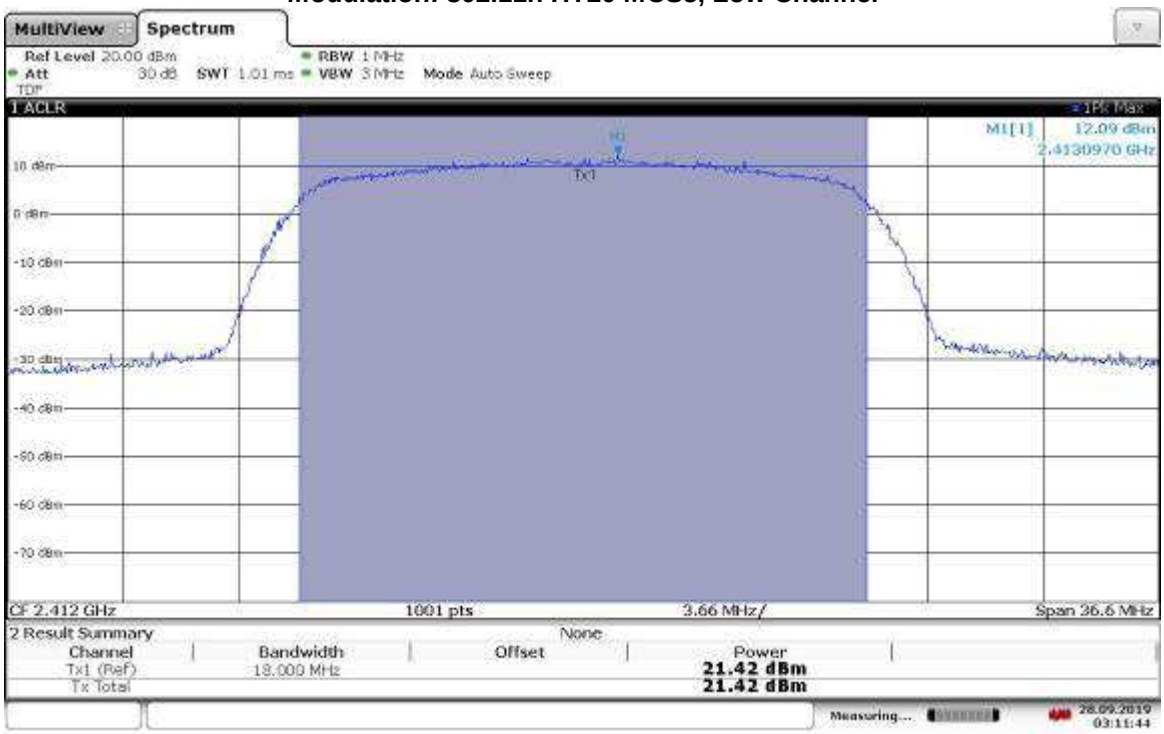
03:08:36 28.09.2019

Modulation: 802.11n HT20 MCS4, High Channel



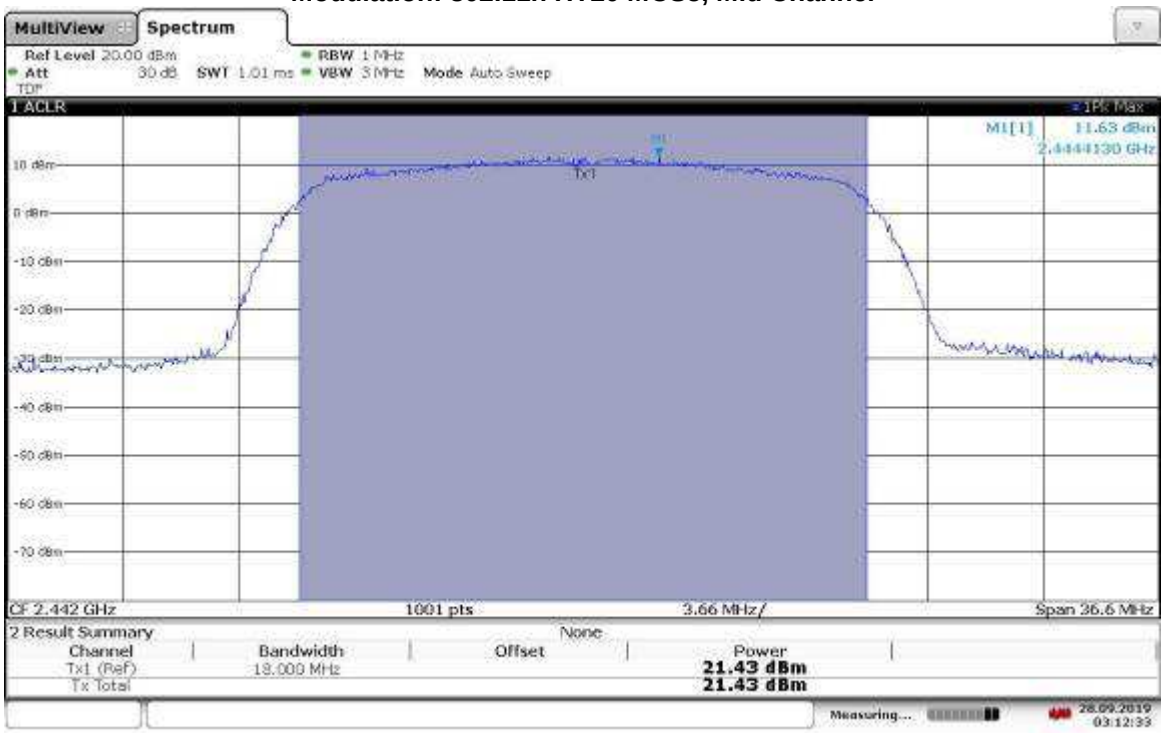
03:07:41 28.09.2019

Modulation: 802.11n HT20 MCS5, Low Channel



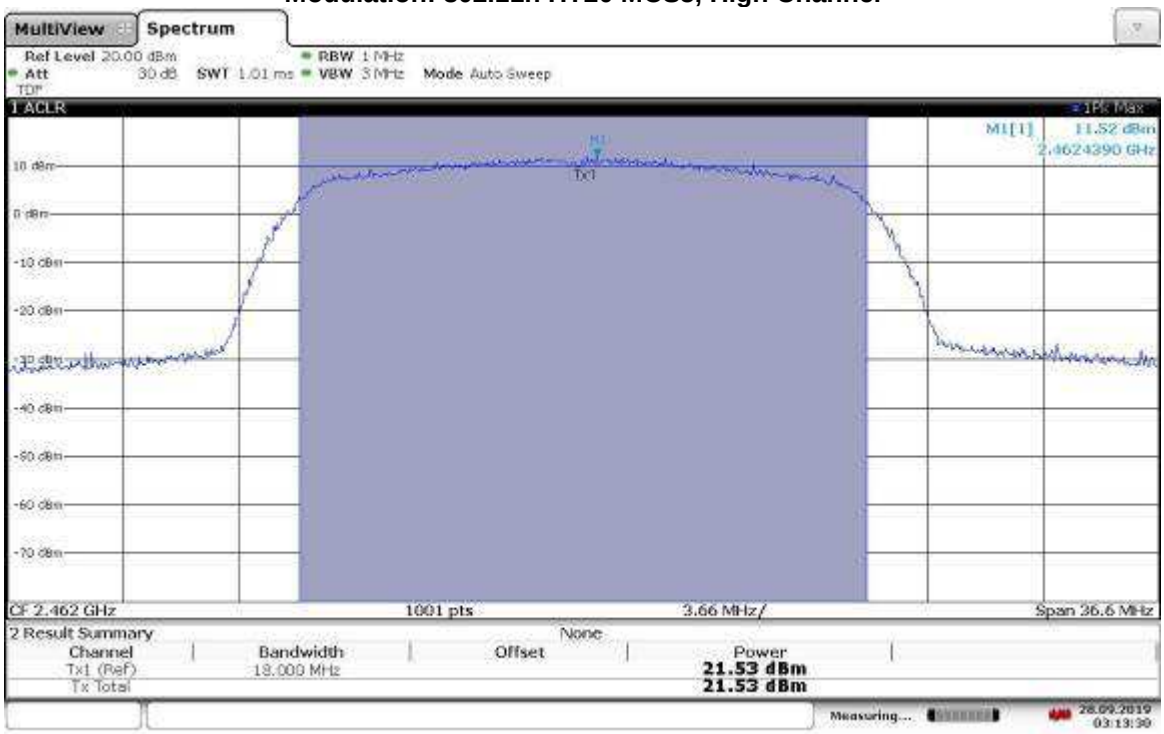
03:11:44 28.09.2019

Modulation: 802.11n HT20 MCS5, Mid Channel



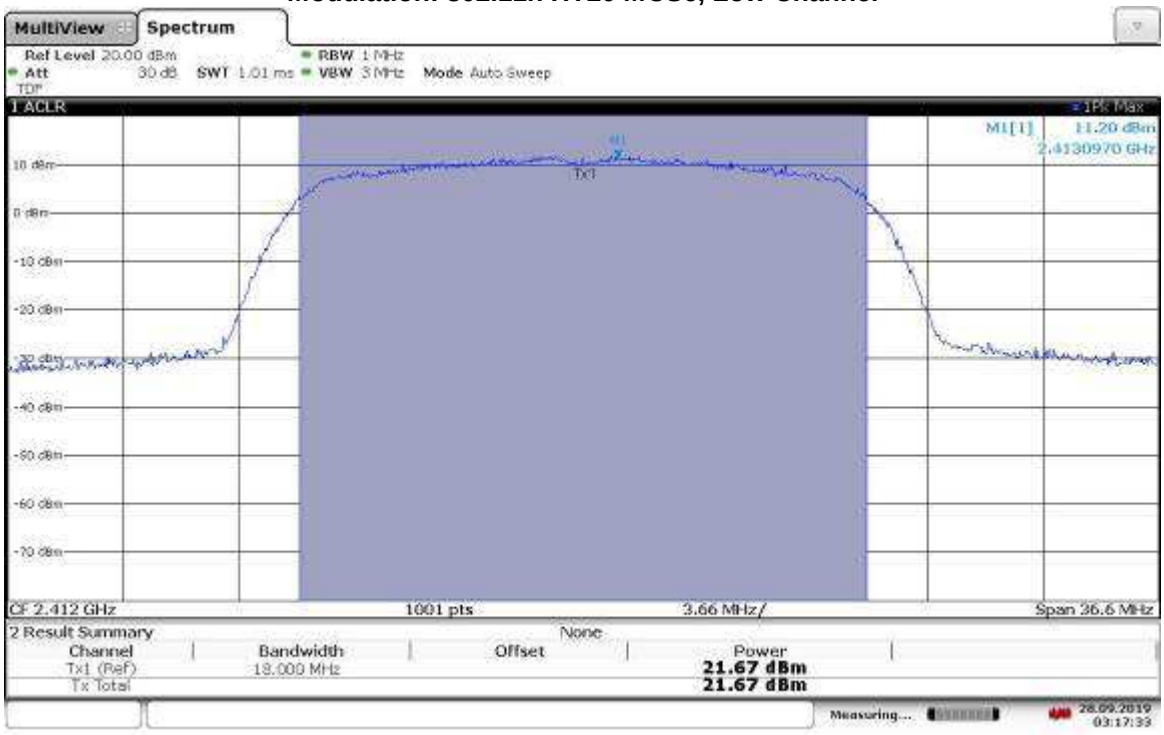
03:12:33 28.09.2019

Modulation: 802.11n HT20 MCS5, High Channel



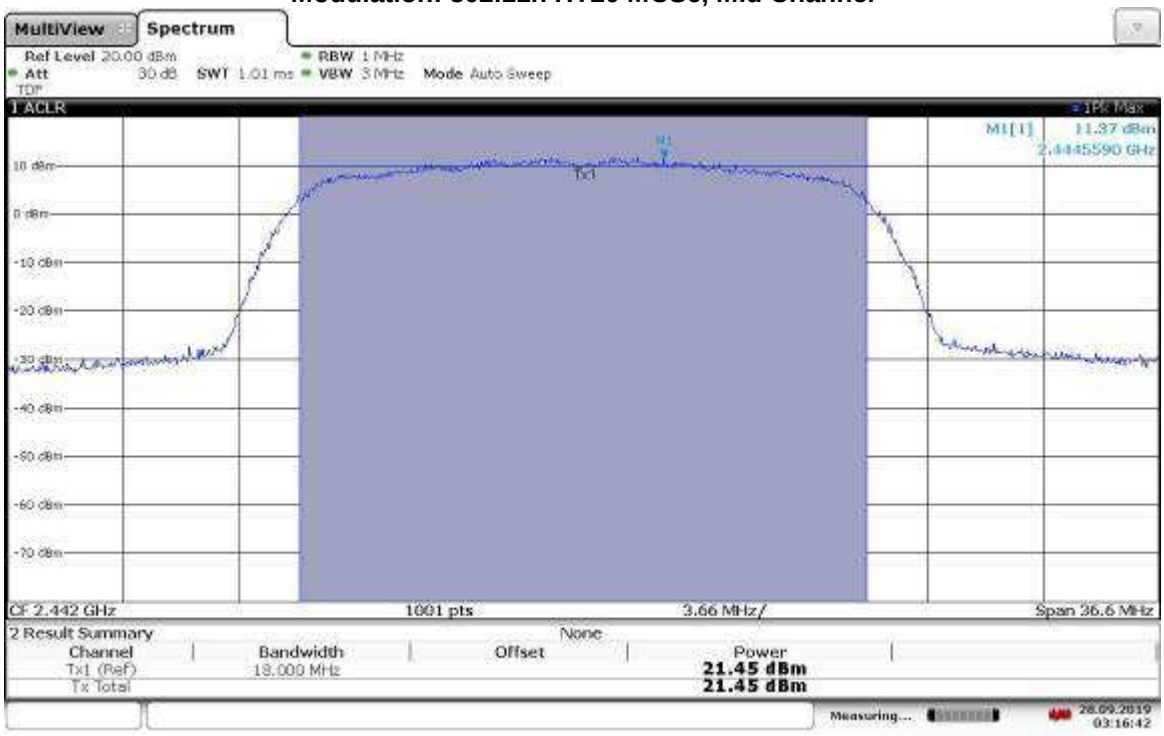
03:13:31 28.09.2019

Modulation: 802.11n HT20 MCS6, Low Channel



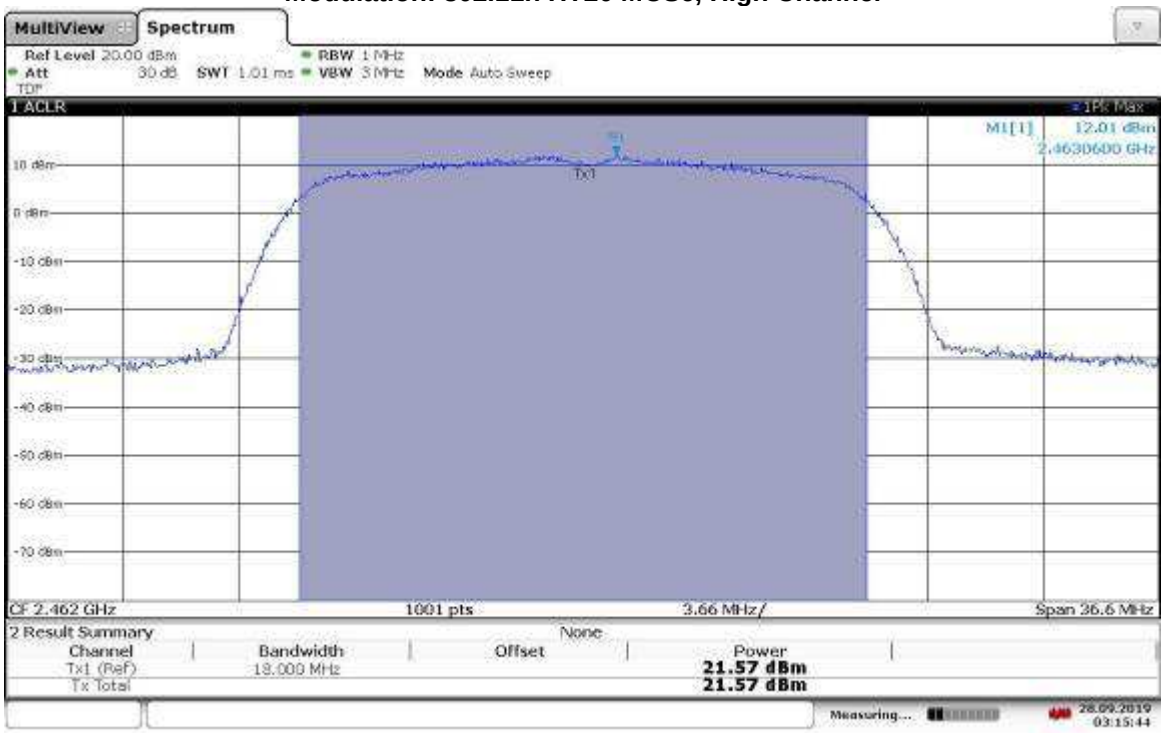
03:17:33 28.09.2019

Modulation: 802.11n HT20 MCS6, Mid Channel



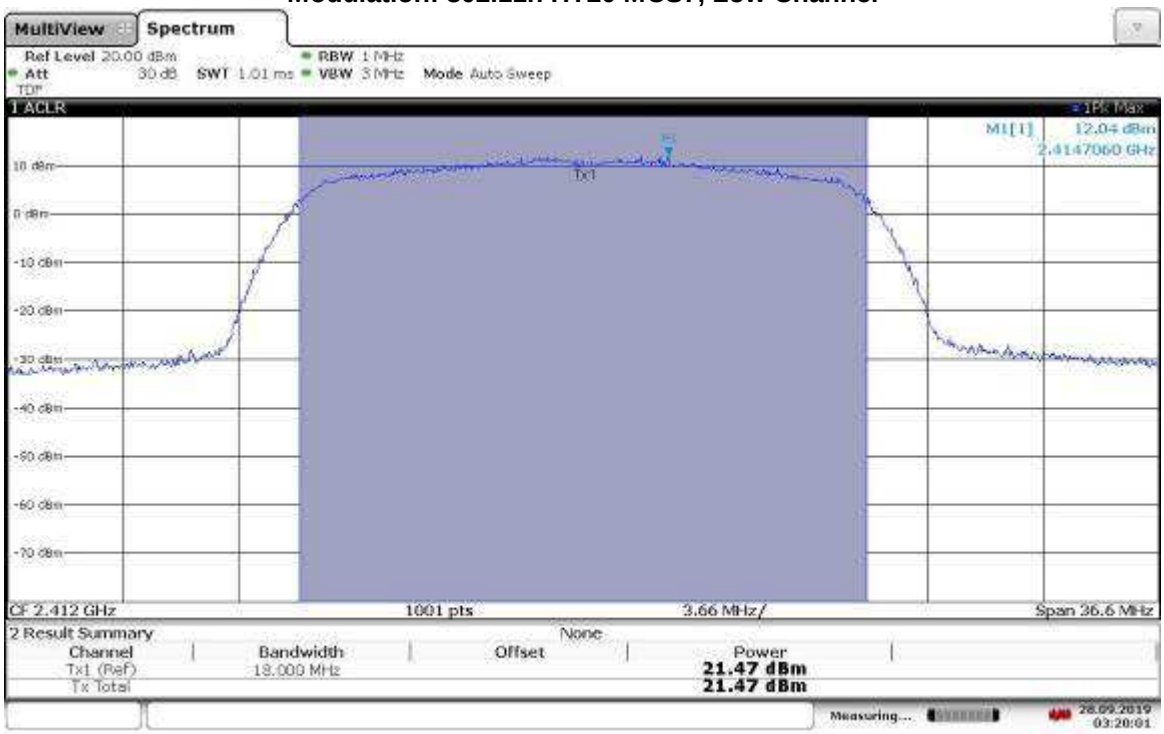
03:16:42 28.09.2019

Modulation: 802.11n HT20 MCS6, High Channel



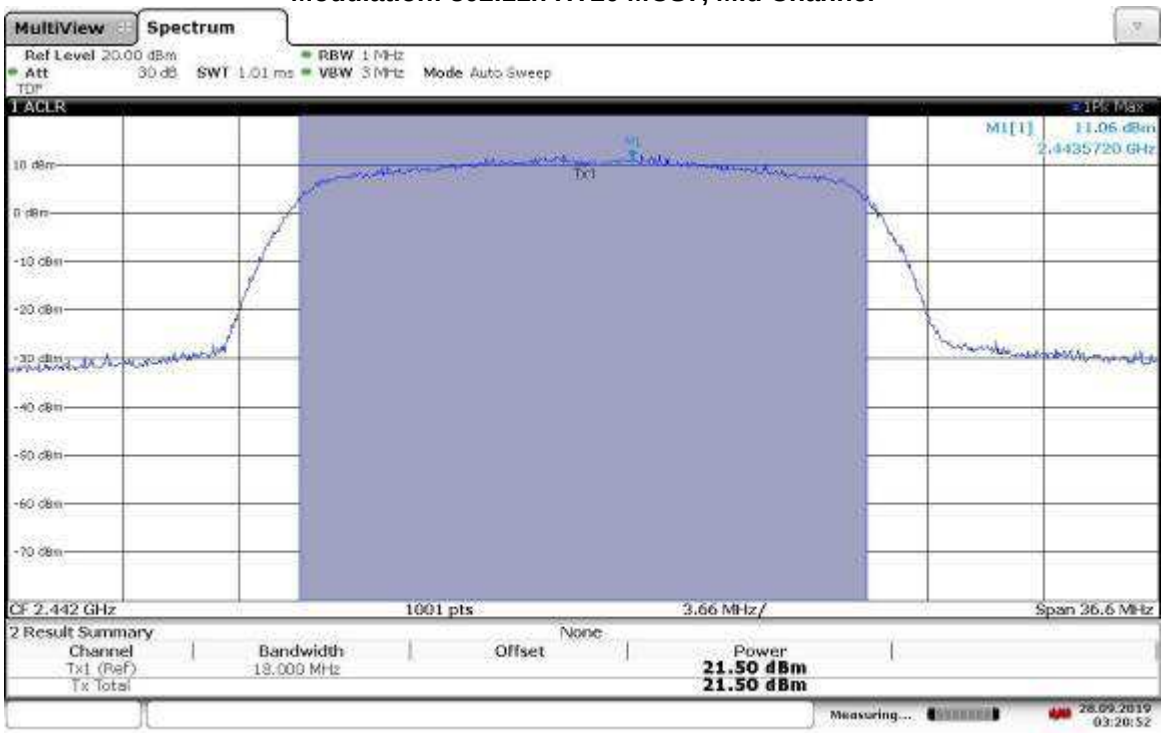
03:15:44 28.09.2019

Modulation: 802.11n HT20 MCS7, Low Channel



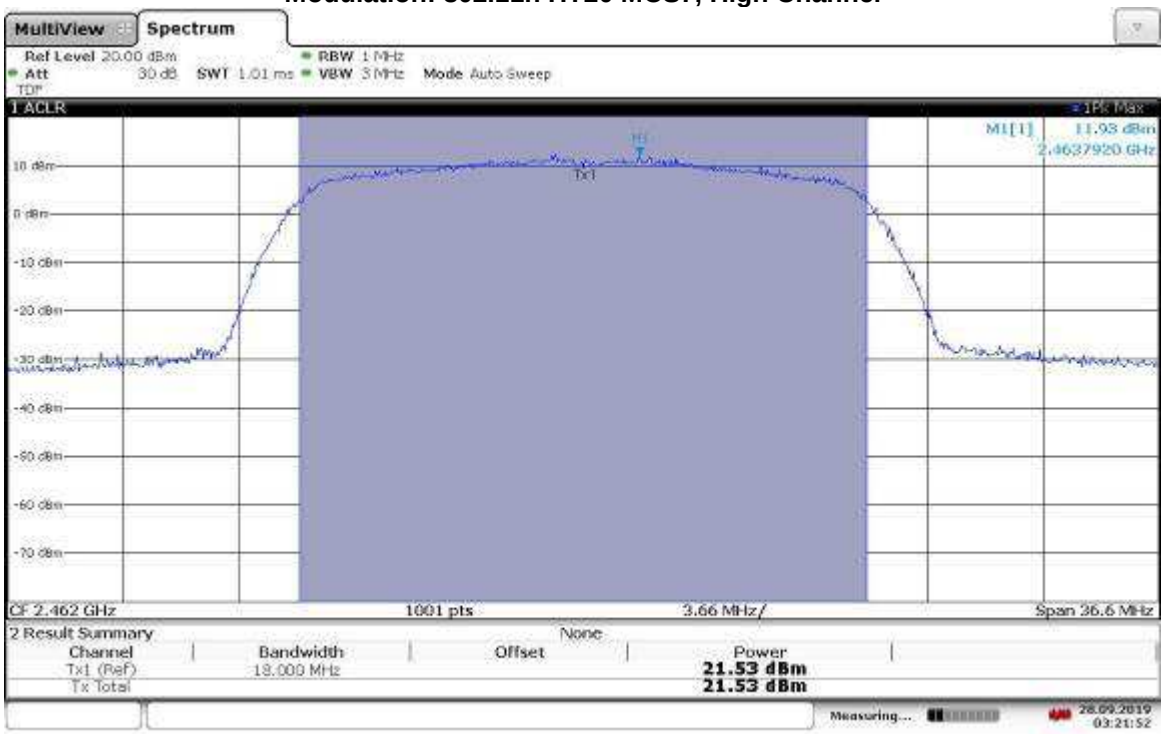
03:20:01 28.09.2019

Modulation: 802.11n HT20 MCS7, Mid Channel



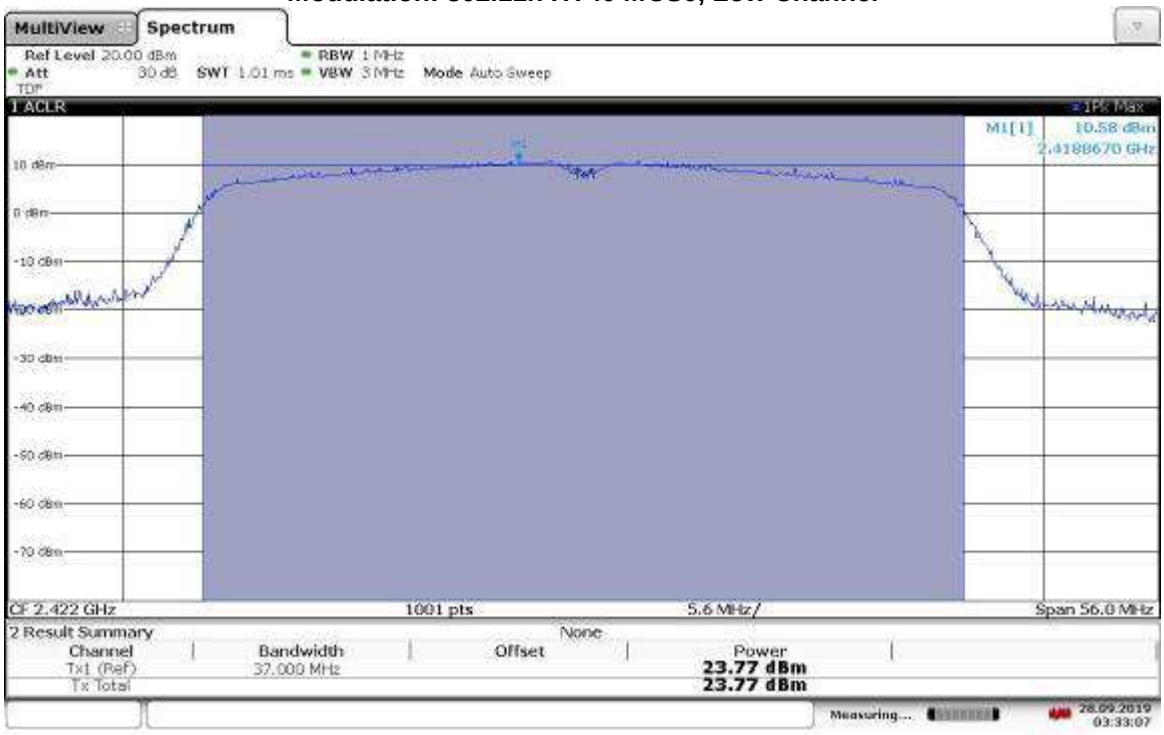
03:20:53 28.09.2019

Modulation: 802.11n HT20 MCS7, High Channel



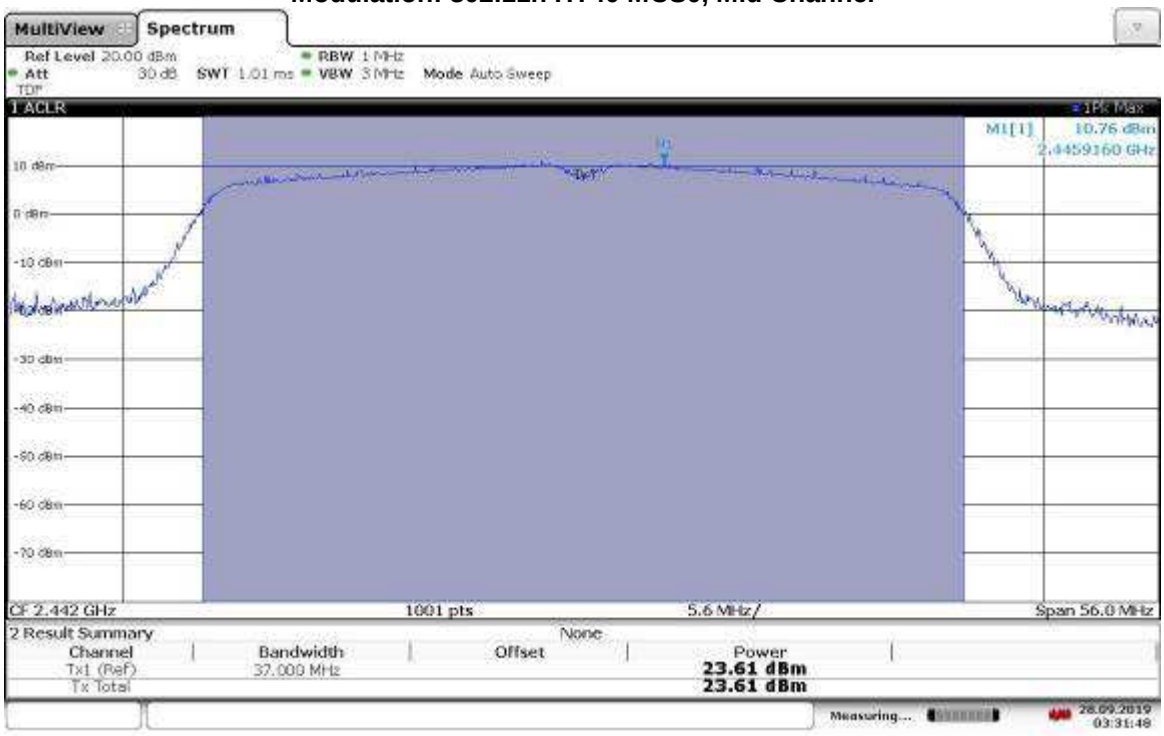
03:21:53 28.09.2019

Modulation: 802.11n HT40 MCS0, Low Channel



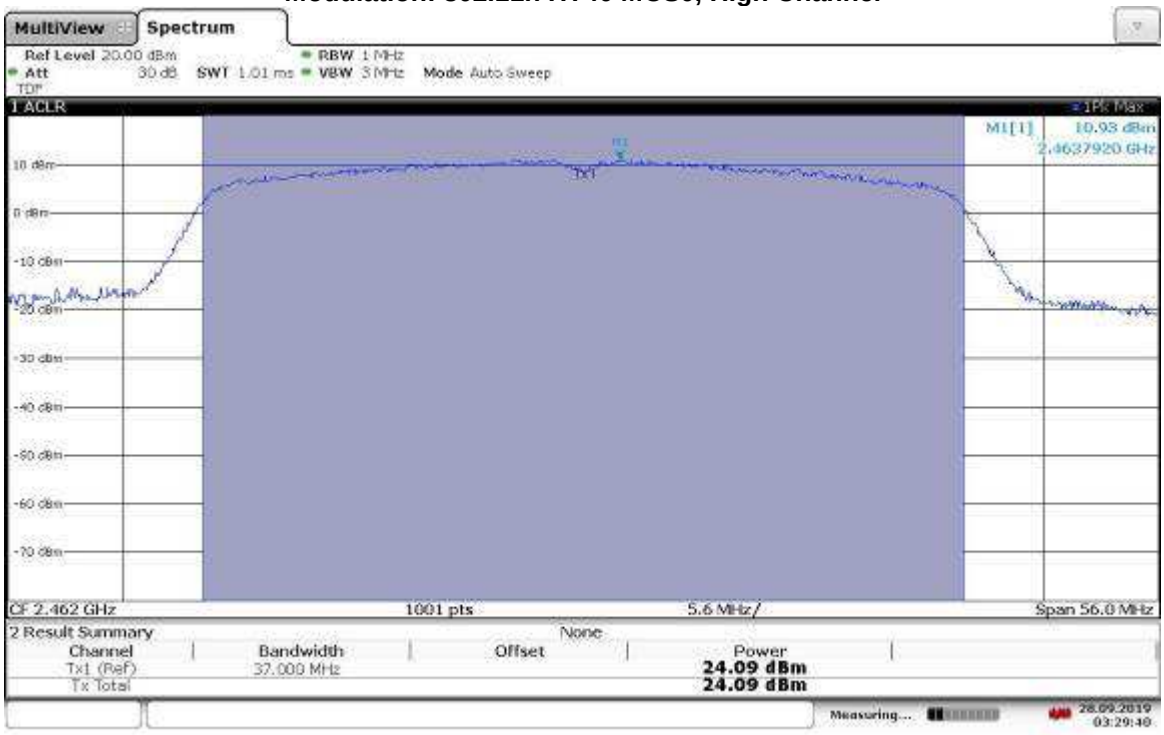
03:33:08 28.09.2019

Modulation: 802.11n HT40 MCS0, Mid Channel



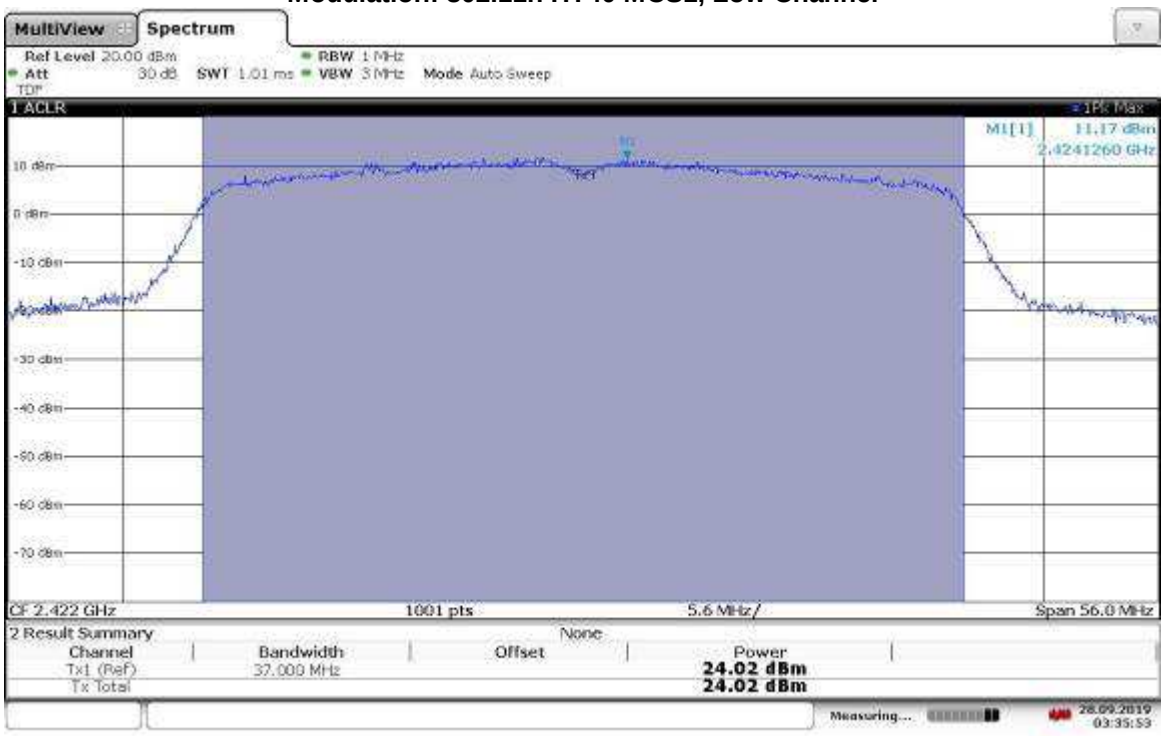
03:31:48 28.09.2019

Modulation: 802.11n HT40 MCS0, High Channel



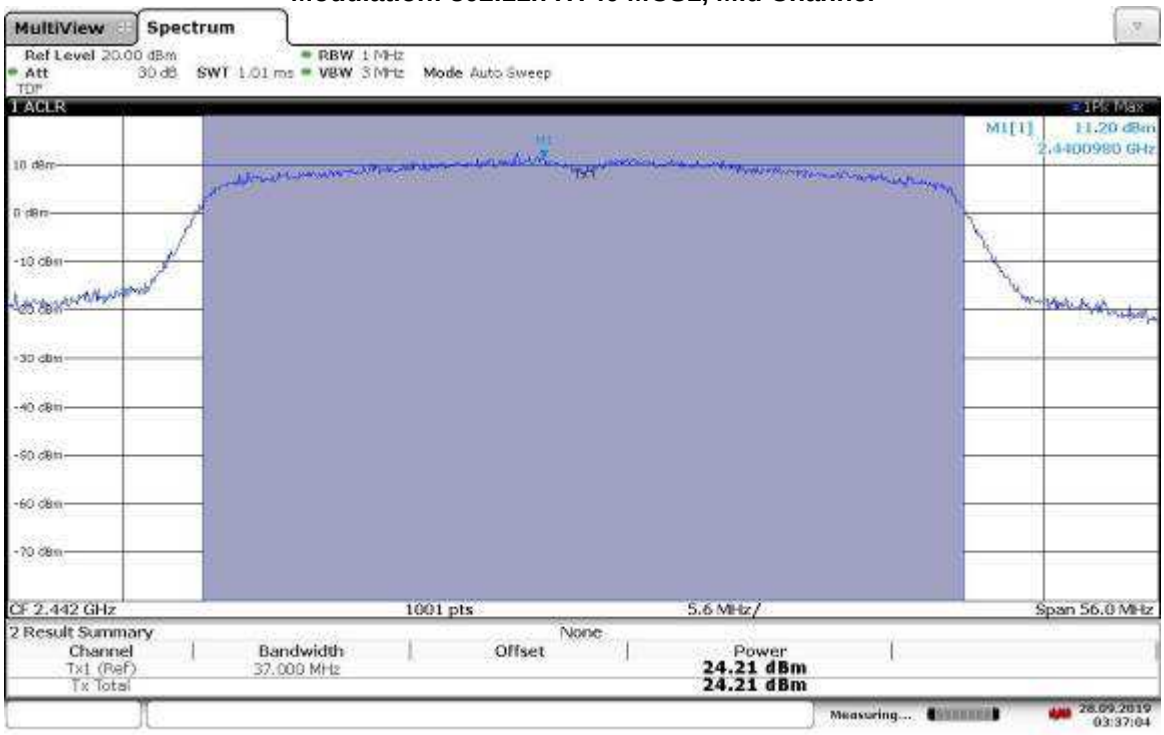
03:29:40 28.09.2019

Modulation: 802.11n HT40 MCS1, Low Channel



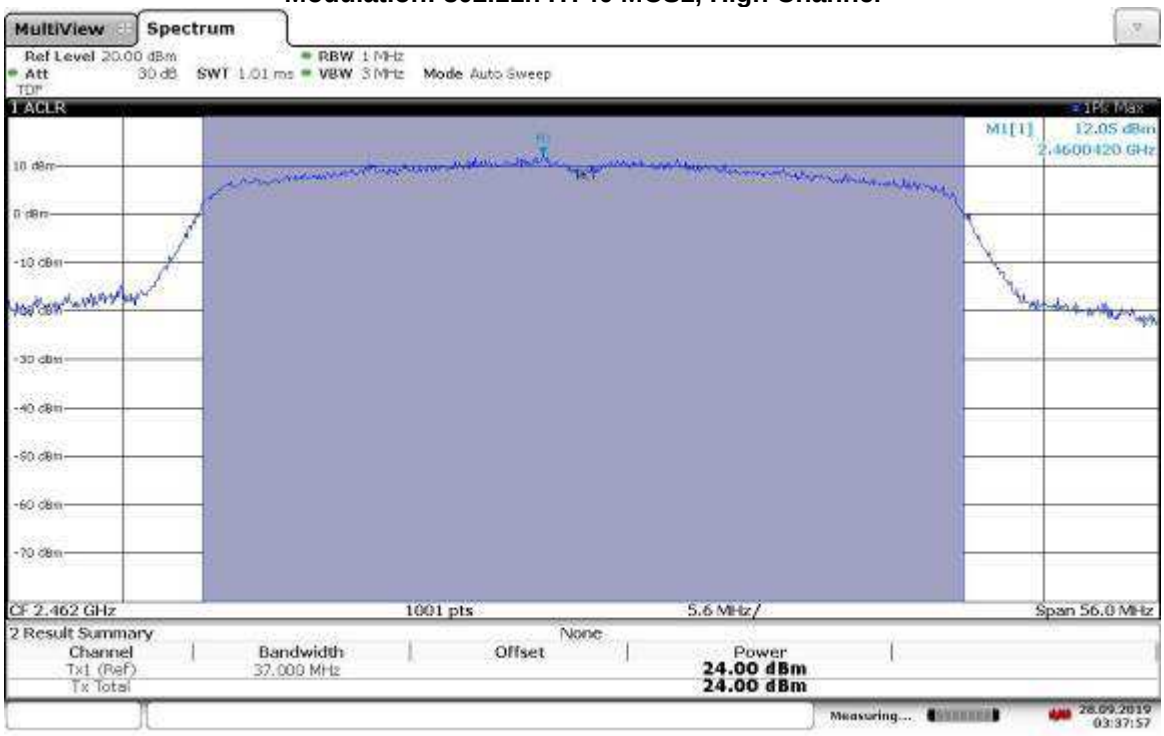
03:35:53 28.09.2019

Modulation: 802.11n HT40 MCS1, Mid Channel



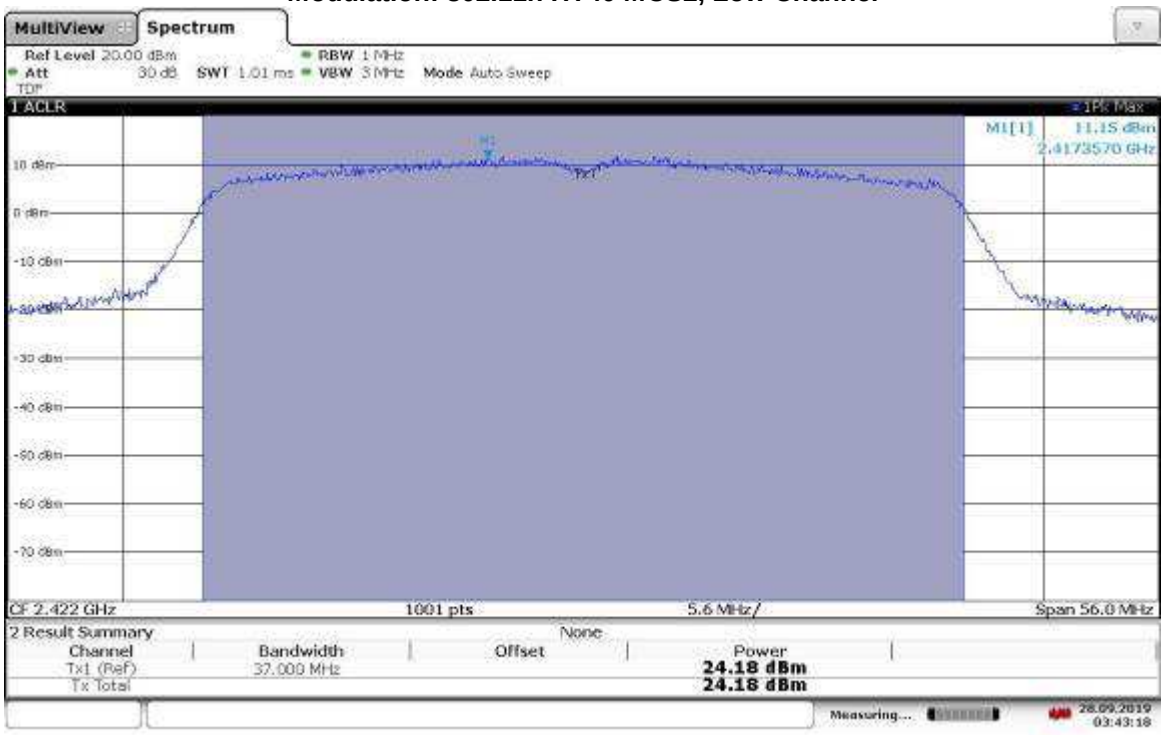
03:37:04 28.09.2019

Modulation: 802.11n HT40 MCS1, High Channel



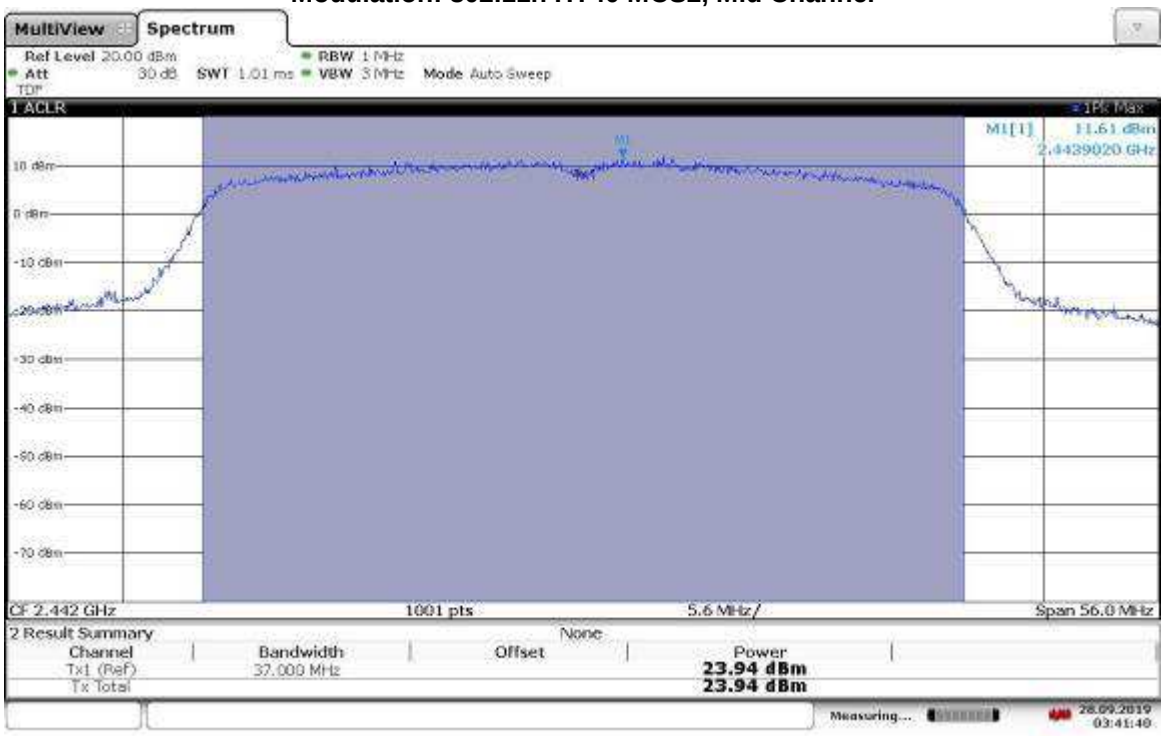
03:37:58 28.09.2019

Modulation: 802.11n HT40 MCS2, Low Channel



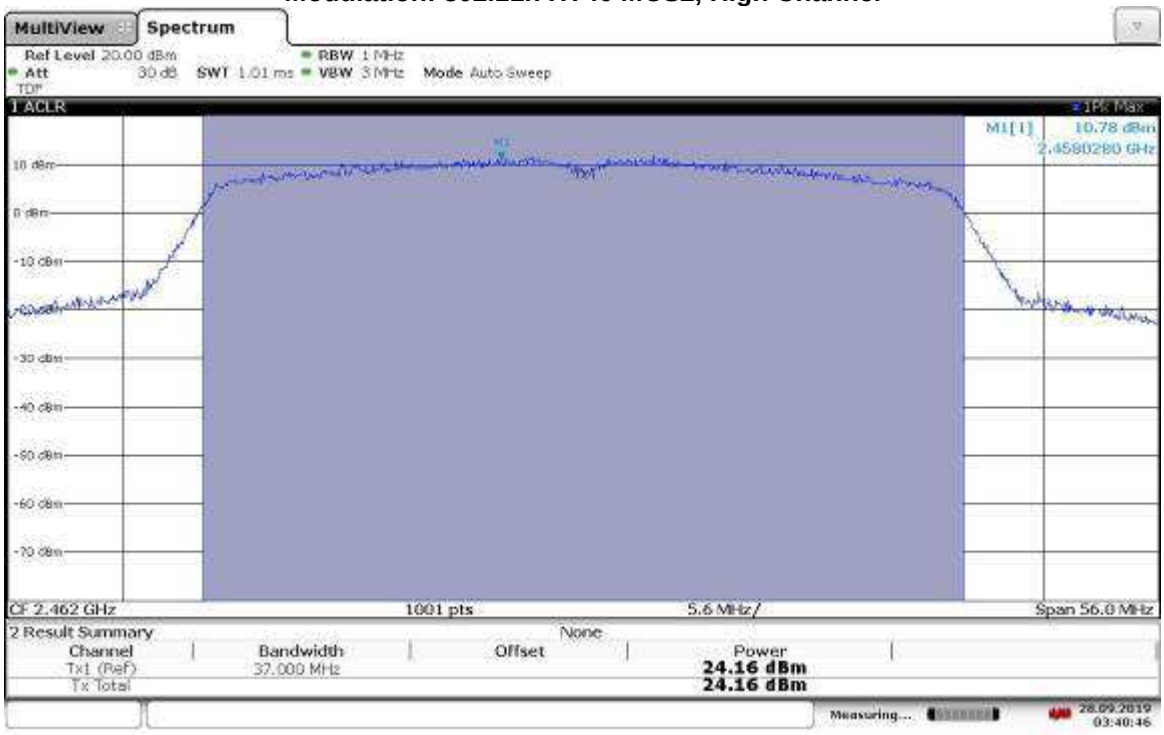
03:43:18 28.09.2019

Modulation: 802.11n HT40 MCS2, Mid Channel



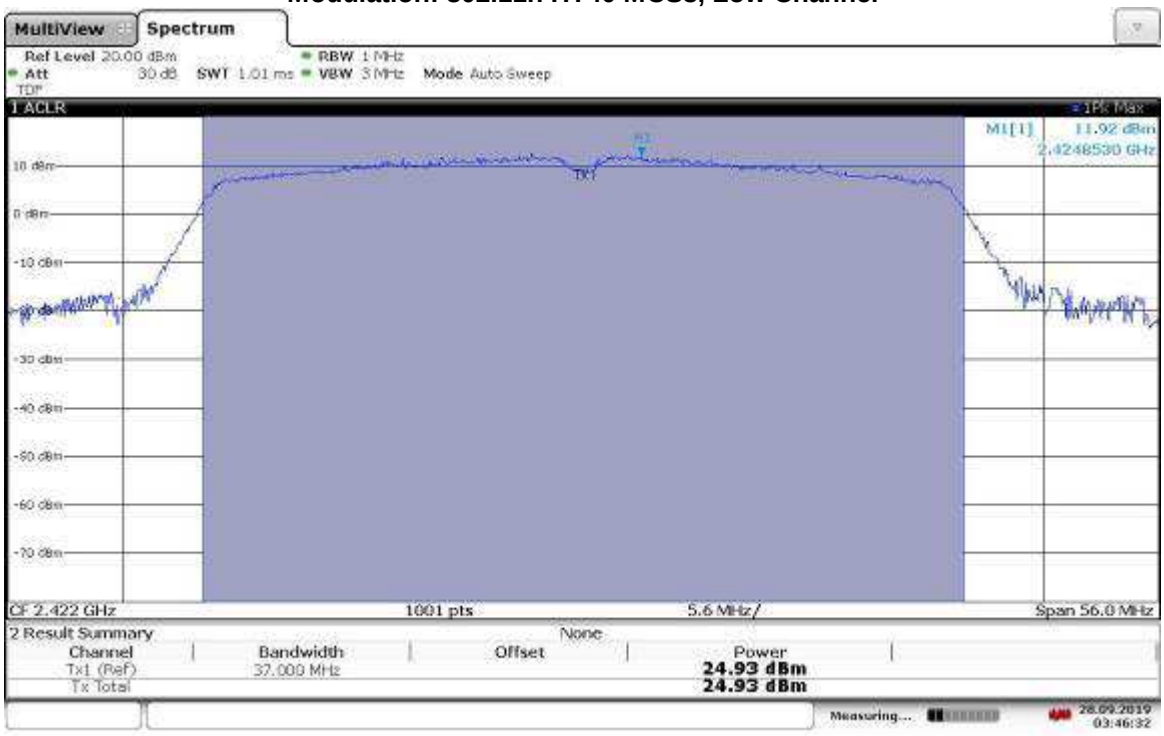
03:41:40 28.09.2019

Modulation: 802.11n HT40 MCS2, High Channel



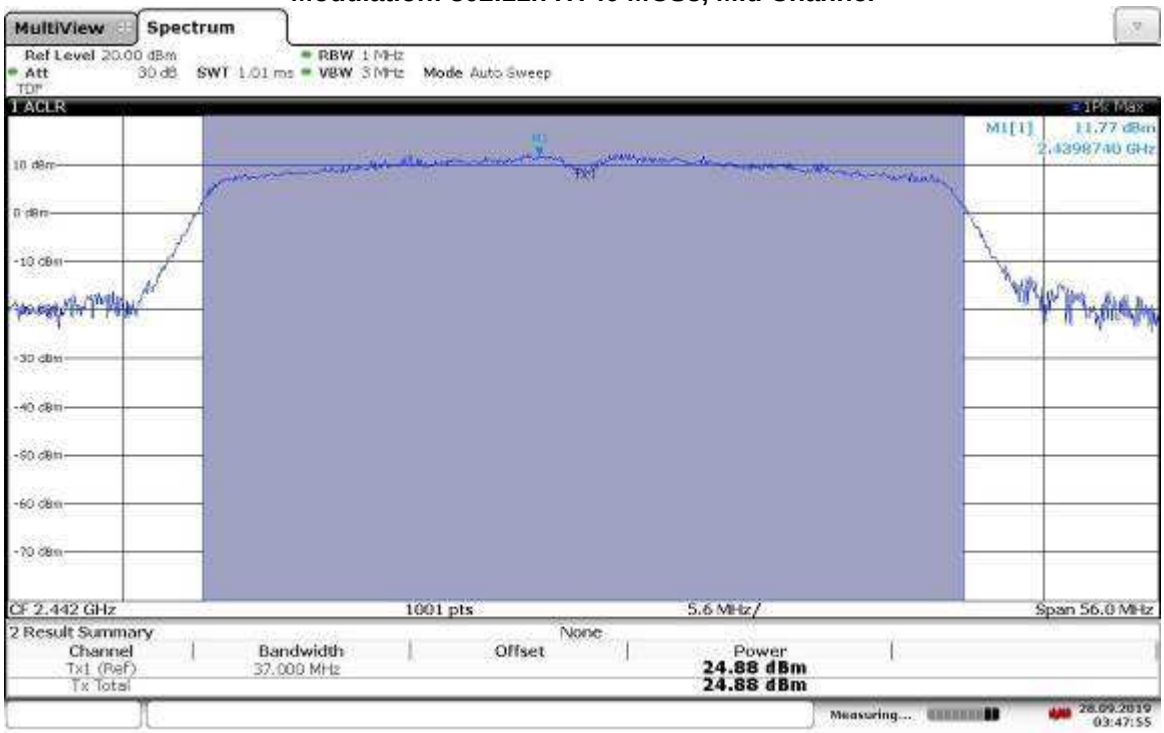
03:40:47 28.09.2019

Modulation: 802.11n HT40 MCS3, Low Channel



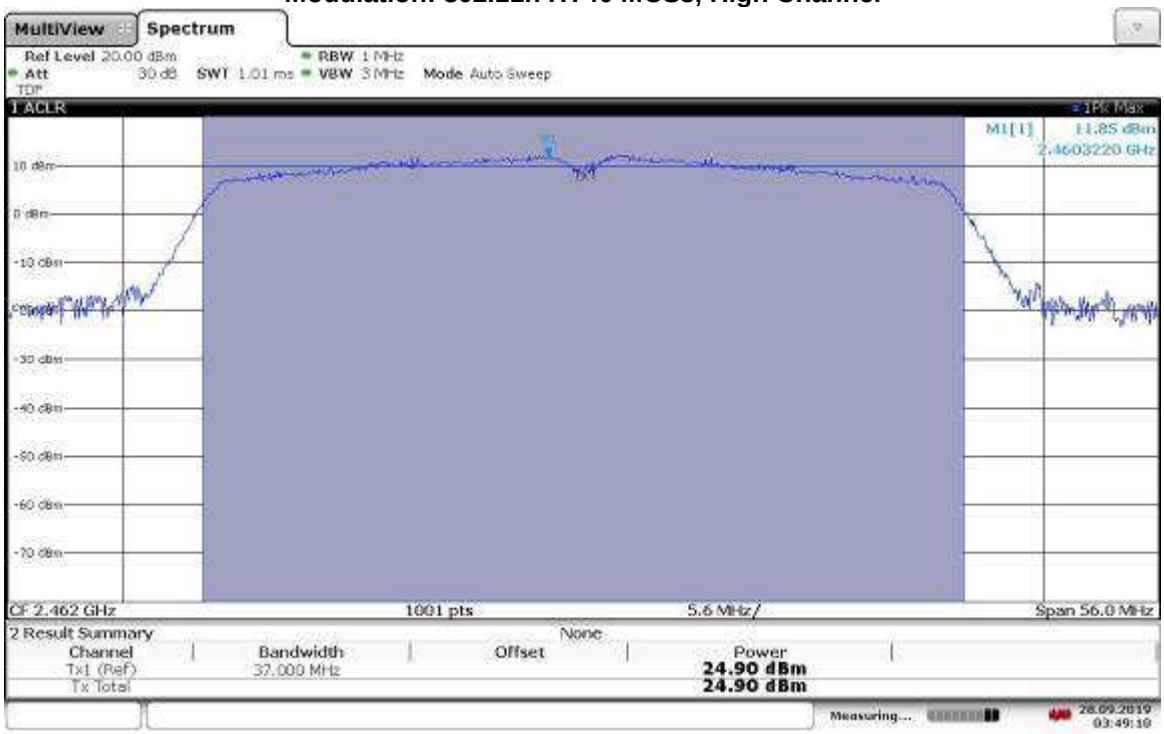
03:46:32 28.09.2019

Modulation: 802.11n HT40 MCS3, Mid Channel



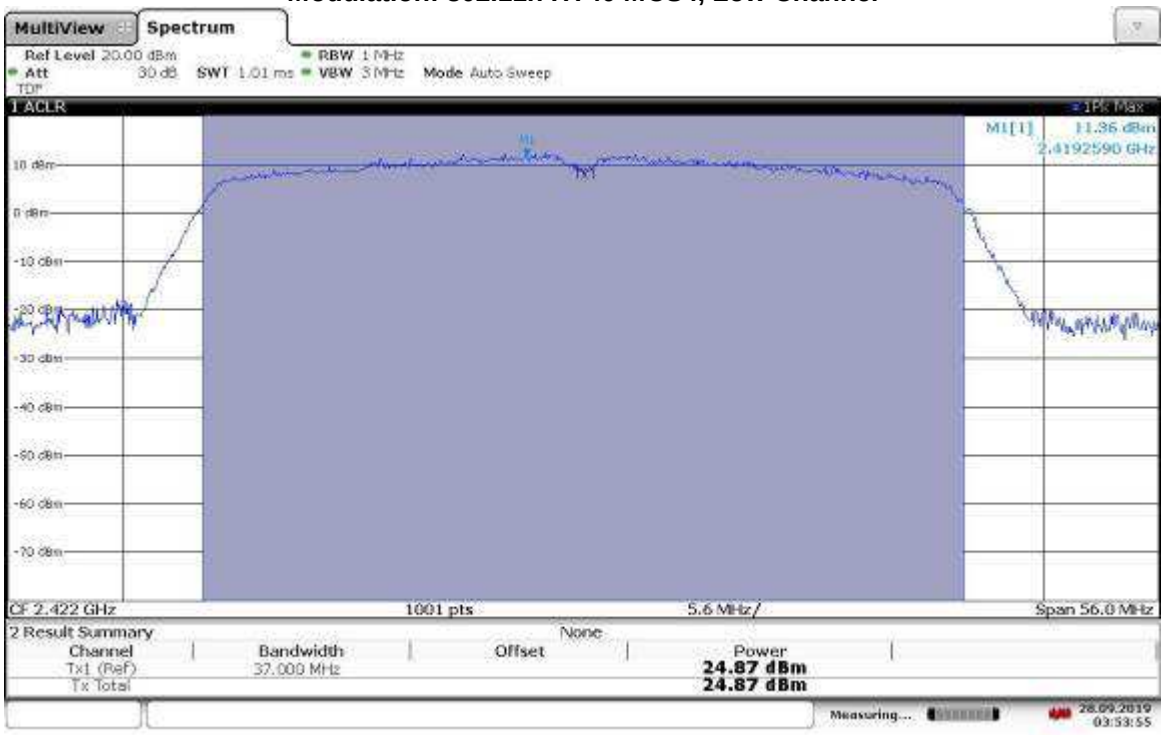
03:47:55 28.09.2019

Modulation: 802.11n HT40 MCS3, High Channel



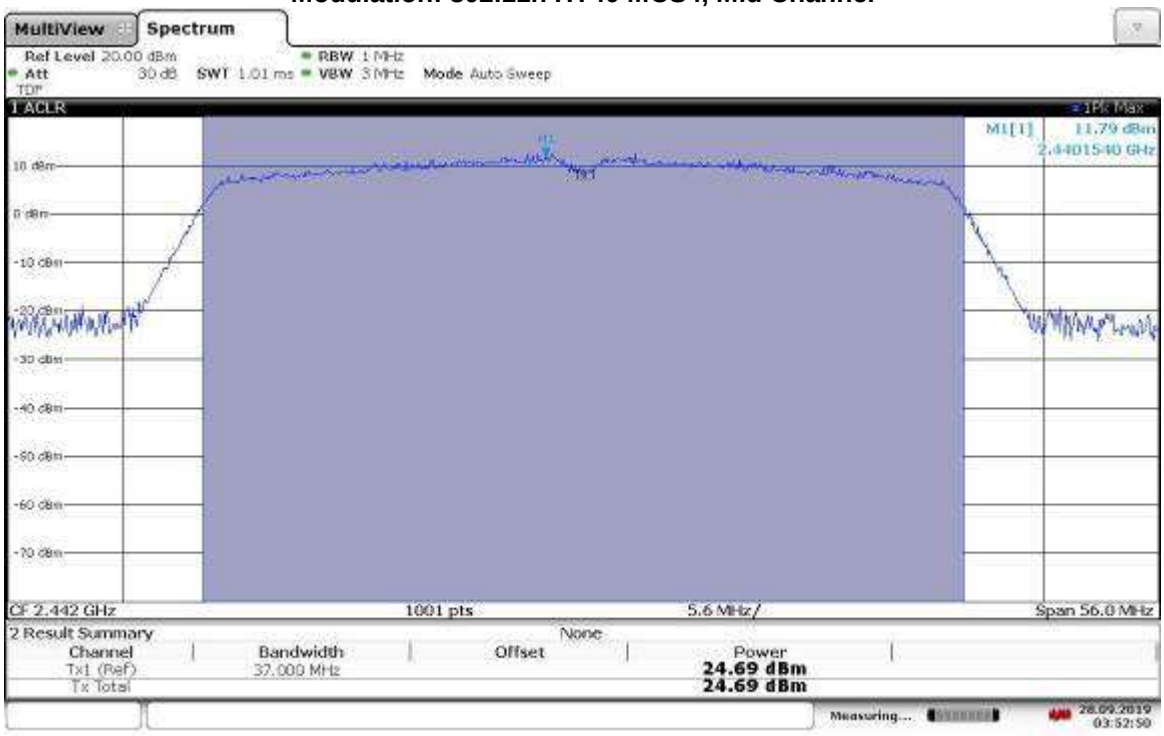
03:49:10 28.09.2019

Modulation: 802.11n HT40 MCS4, Low Channel



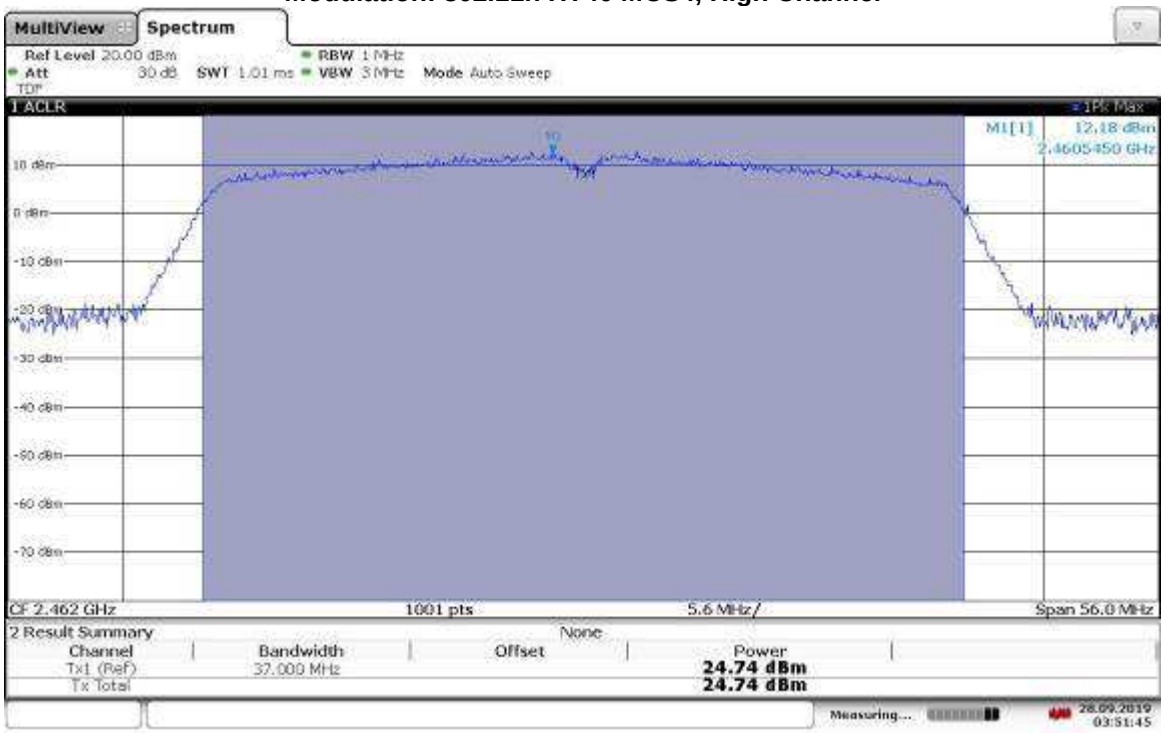
03:53:55 28.09.2019

Modulation: 802.11n HT40 MCS4, Mid Channel



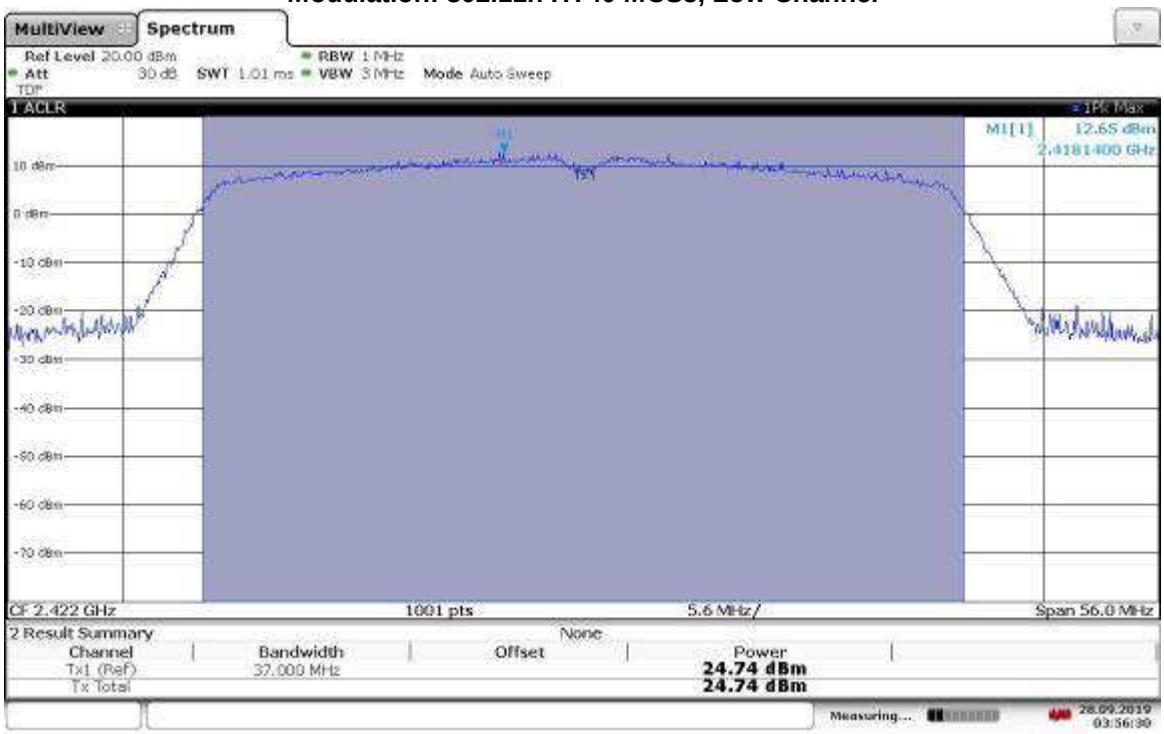
03:52:50 28.09.2019

Modulation: 802.11n HT40 MCS4, High Channel



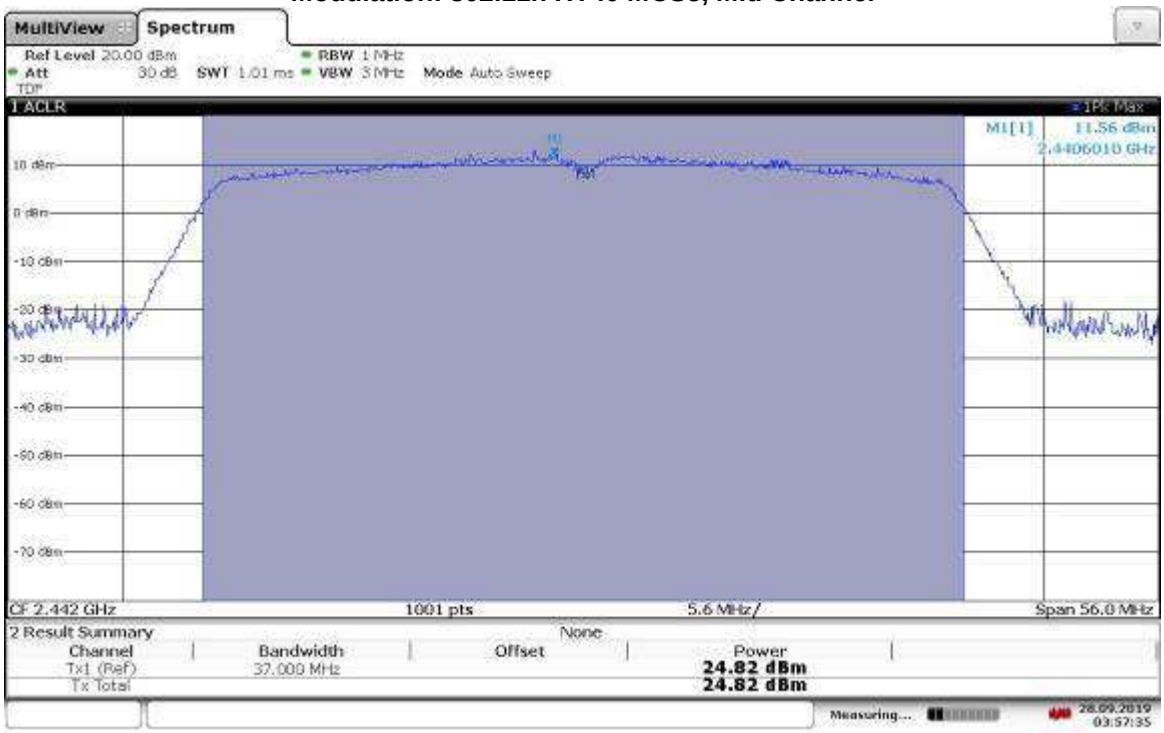
03:51:46 28.09.2019

Modulation: 802.11n HT40 MCS5, Low Channel



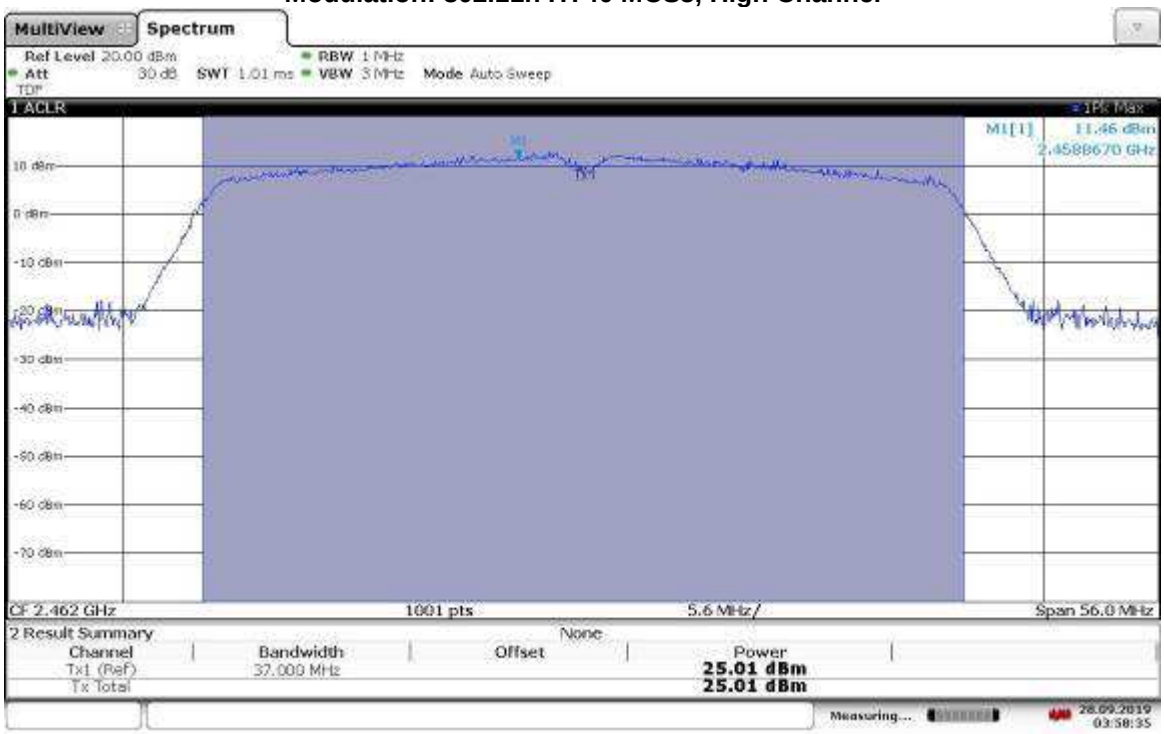
03:56:31 28.09.2019

Modulation: 802.11n HT40 MCS5, Mid Channel



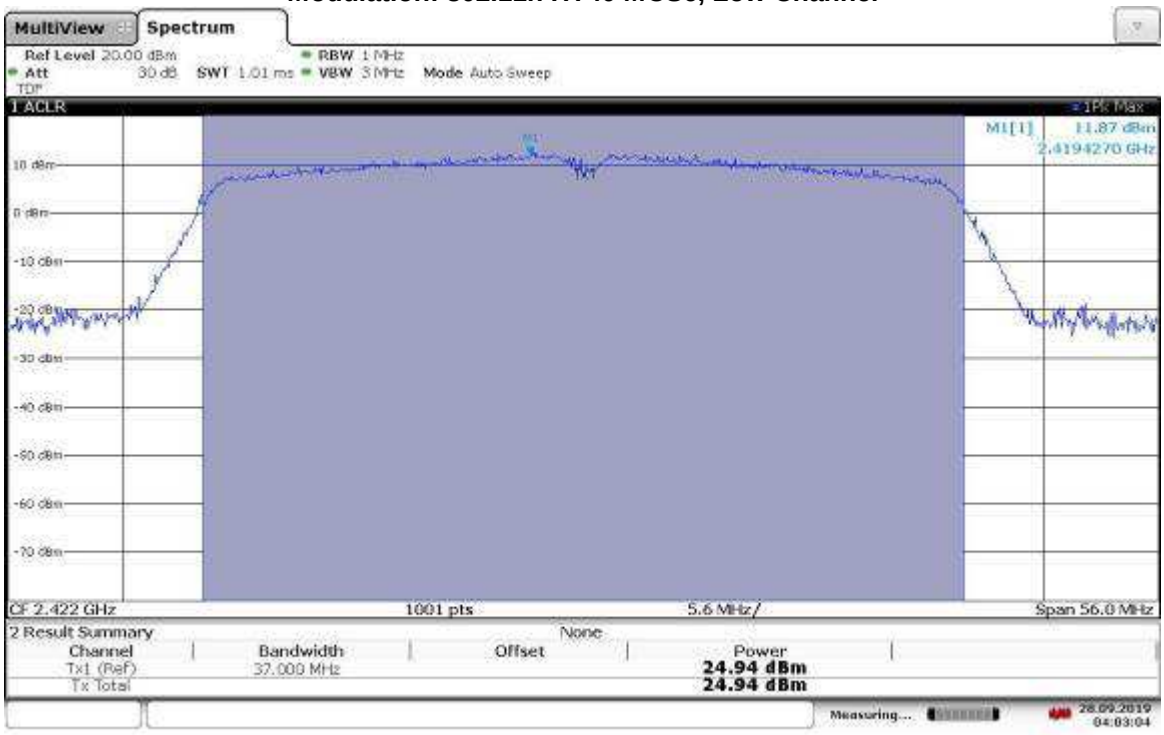
03:57:35 28.09.2019

Modulation: 802.11n HT40 MCS5, High Channel



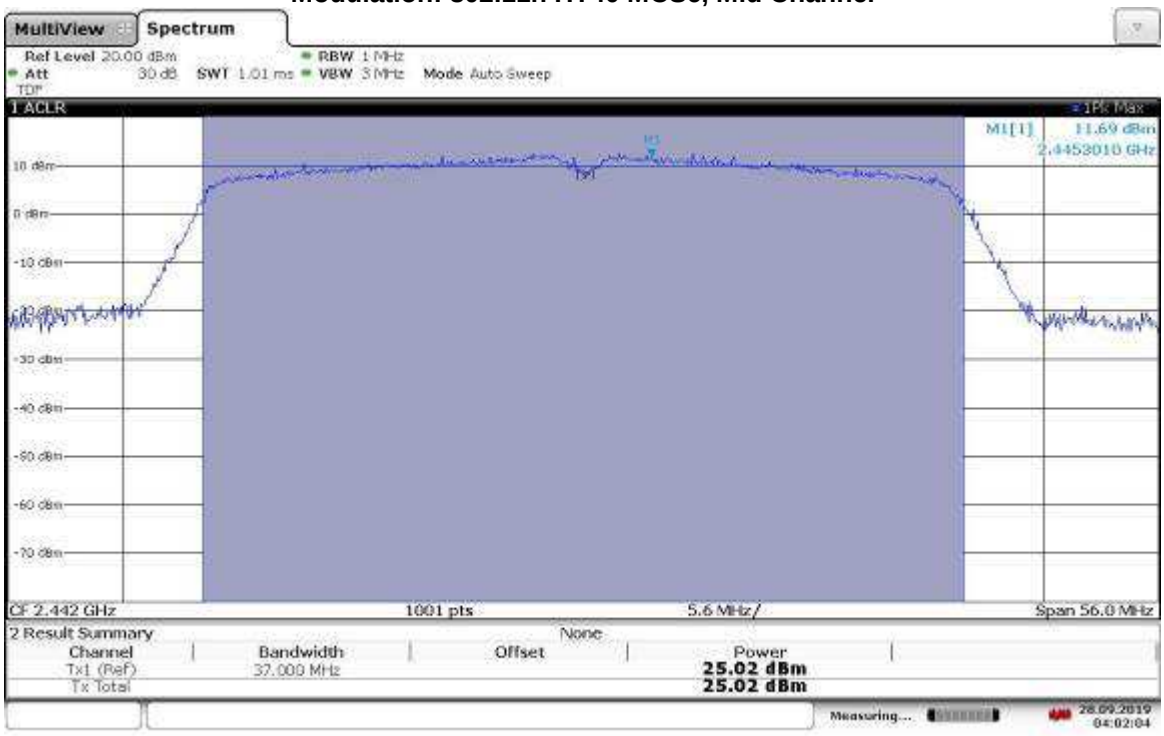
03:58:35 28.09.2019

Modulation: 802.11n HT40 MCS6, Low Channel



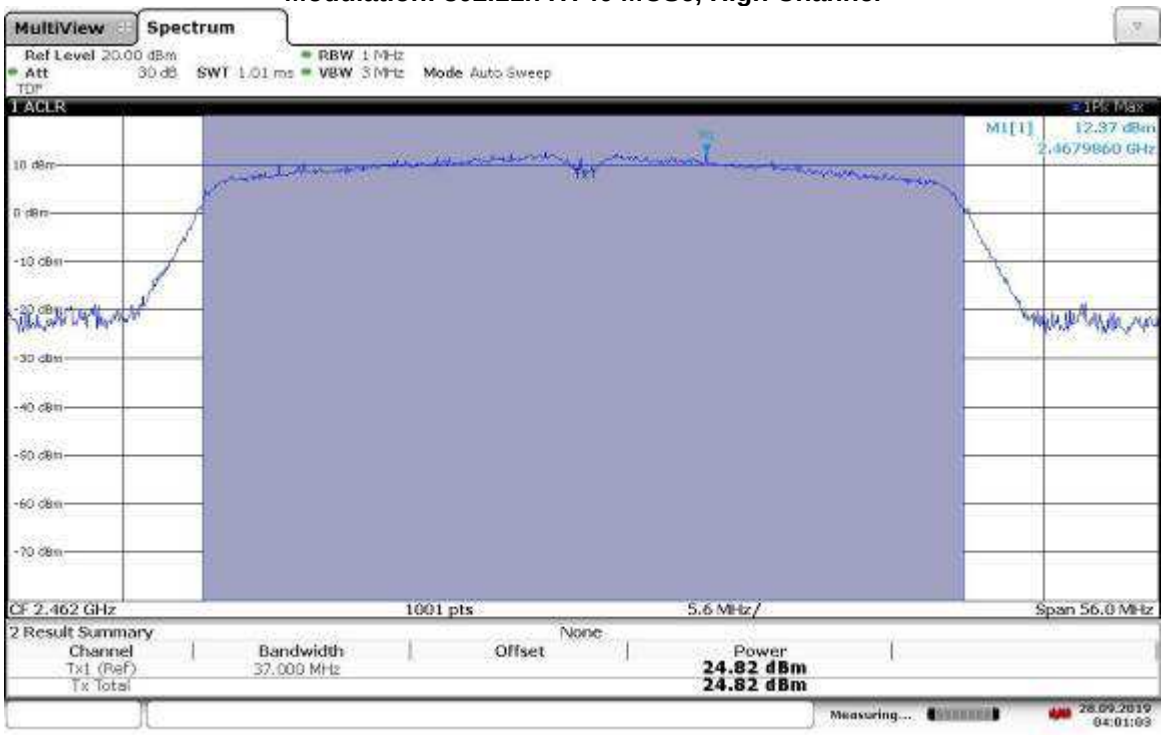
04:03:05 28.09.2019

Modulation: 802.11n HT40 MCS6, Mid Channel



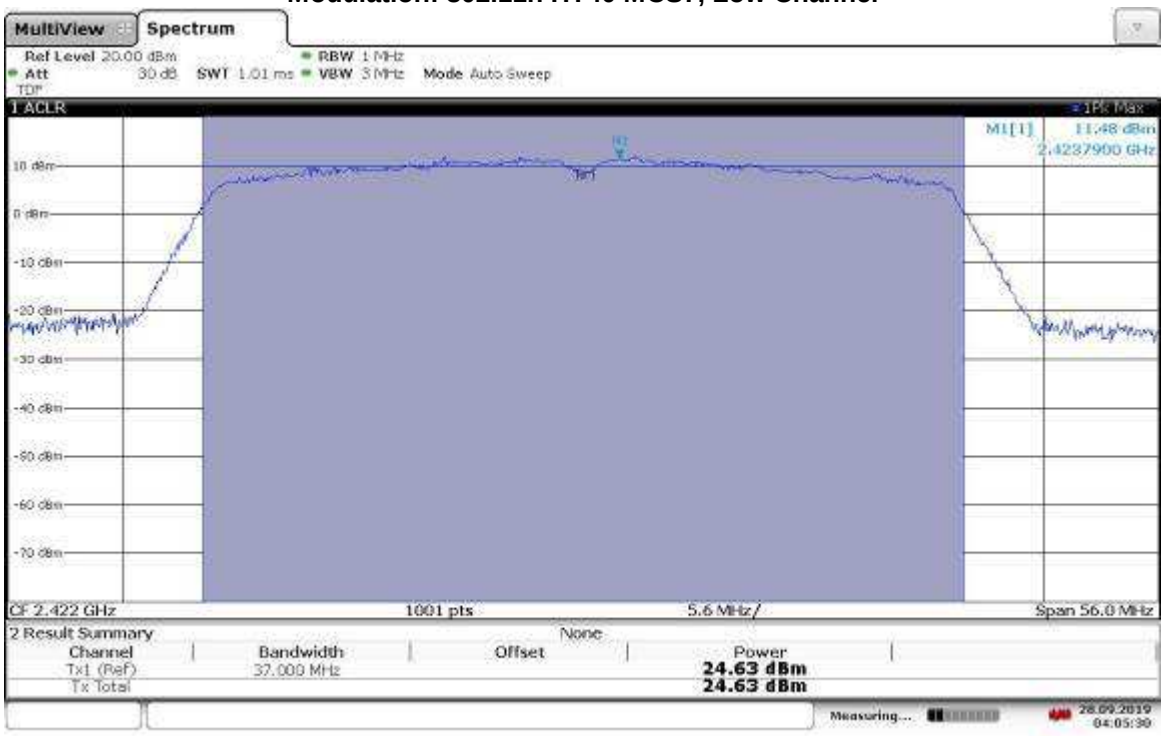
04:02:05 28.09.2019

Modulation: 802.11n HT40 MCS6, High Channel



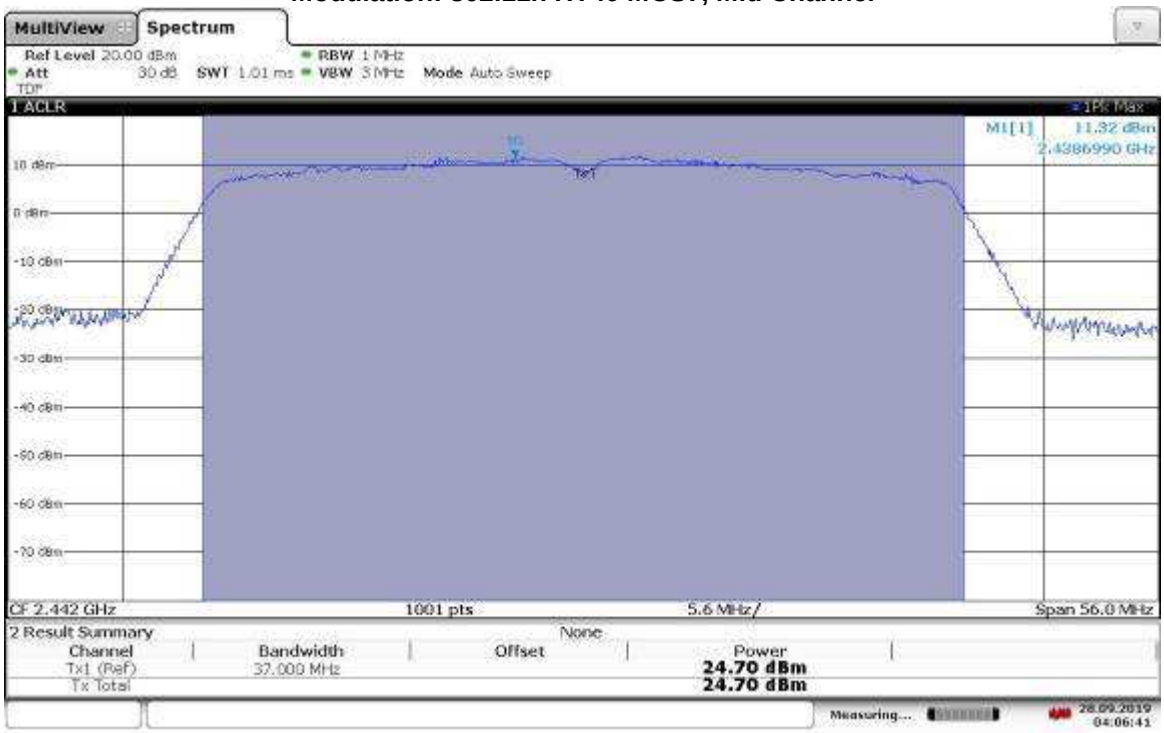
04:01:03 28.09.2019

Modulation: 802.11n HT40 MCS7, Low Channel



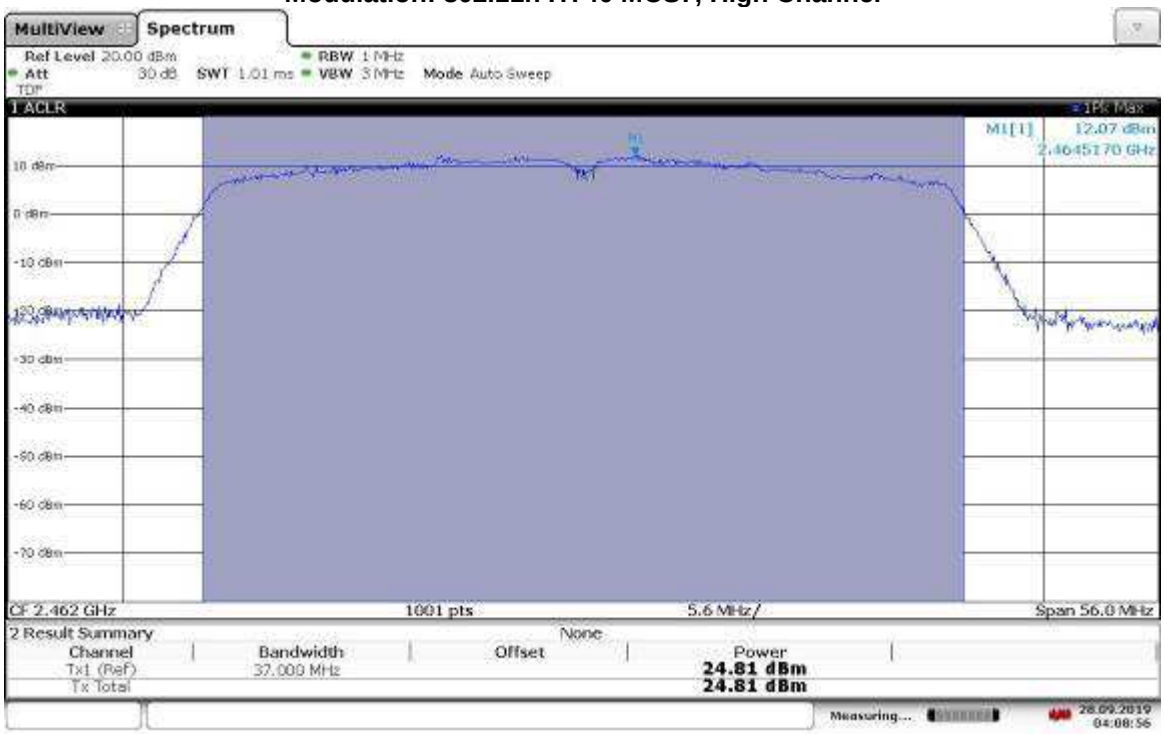
04:05:31 28.09.2019

Modulation: 802.11n HT40 MCS7, Mid Channel



04:06:41 28.09.2019

Modulation: 802.11n HT40 MCS7, High Channel



04:08:57 28.09.2019

Test Personnel:	Vathana Ven VSV	Test Date:	09/26/2019
Supervising/Reviewing Engineer: (Where Applicable)	N/A		
Product Standard:	CFR47 FCC Part 15.247	Limit Applied:	See report section 6.3
Input Voltage:	5 VDC (USB)	Ambient Temperature:	22 ºC
Pretest Verification w/ Ambient Signals or BB Source:	**N/A**	Relative Humidity:	62 %
		Atmospheric Pressure:	1010 mbars

Deviations, Additions, or Exclusions: None

7 Maximum Permissible Exposure (MPE)

7.1 Method

Tests are performed in accordance with CFR47 FCC Part 15.247, CFR47 FCC Part 1.1310, CFR47 FCC Part 2.1091, ANSI C63.10, and KDB 558074.

TEST SITE: EMC Lab

The EMC Lab has one Semi-anechoic Chamber and one Shielded Chamber. AC Mains Power is available at 120, 230, and 277 Single Phase; 208, 400, and 480 3-Phase. Large reference ground-planes are installed in the general lab area to facilitate EMC work not requiring a shielded environment.

7.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
CEN001'	DC-40GHz attenuator 20dB	Centric RF	C411-20	CEN001	02/01/2019	02/01/2020
CBLHF2012-2M-1'	2m 9kHz-40GHz Coaxial Cable - SET1	Huber & Suhner	SF102	252675001	02/01/2019	02/01/2020
ROS005-1'	Signal and Spectrum Analyzer	Rohde & Schwarz	FSW43	100646	10/15/2018	10/15/2019
DS40'	Temp, humidity, pressure gauge	Digi Sense	68000-49	181717625	11/06/2018	11/06/2019

Software Utilized:

Name	Manufacturer	Version
None	--	--

7.3 Results:

The sample tested was found to Comply.

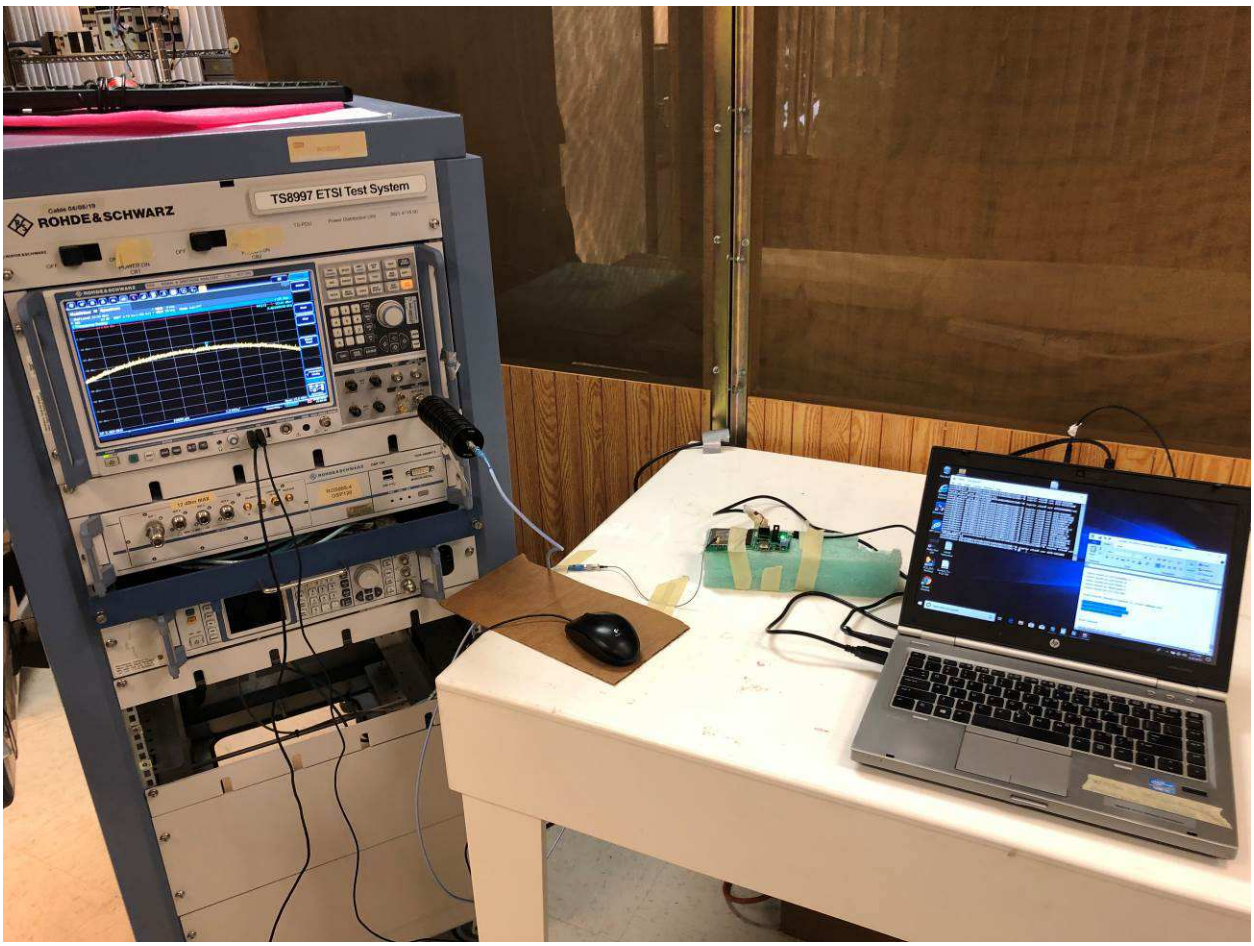
Limit for Maximum Permissible Exposure (MPE) per FCC Part §1.1310: Table 1

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	$*900/f^2$	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	$*180/f^2$	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

7.4 Setup Photograph:



7.5 MPE Calculation:

An MPE evaluation for was performed in order to show that the device was compliant with FCC Part §1.1310 and FCC Part §2.1091. The maximum power density was calculated for each transmitter at a separation distance of 20 cm.

For each transmitter the maximum RF exposure at a 20 cm distance using the formula:

$$ConductedPower_{mW} = 10^{ConductedPower\,(dBm)/10}$$

$$PowerDensity = \frac{ConductedPower_{mW} \times Ant.Gain}{4\pi \times (20_{cm})^2}$$

Maximum Permissible Exposure (MPE)

Maximum Conducted Output Power (Report Section 6.3) = 25.02 dBm = 317.687407 mW

Maximum Antenna Gain = 4 dBi = 10^(1.5/10) = 2.512

Power Density = (317.687407*2.512)/ 5025.6

Power Density = 0.158793 mW/cm^2

FCC Exposure Limit at 2.442 GHz = 1mW/cm^2

The calculated maximum power density at 20cm distance is less than the limit for general population / uncontrolled exposure.

Safe Distance Maximum Permissible Exposure (MPE)

FCC Limit For General Population/Uncontrolled Exposure at 2.442 GHz = 1 mW/cm^2

Power Density = [EIRP] / [4π x (D_{cm})^2]

Where EIRP is in milliwatts and D is in centimeters. Setting the power density equal to the limit of 1 mW/cm^2 and solving for D_{cm} yields the following results.

Results:

EUT EIRP = Conducted power + Array Gain + Antenna gain in dBi

Power Density Limit = [EIRP] / [4π x (D_{cm})^2]
1 mW/cm^2 = [EIRP] / [4π x (D_{cm})^2]
D_{cm} = ([EIRP] / [4π])$^{1/2}$

For Gain = 4 dBi,
EIRP = 25.02 dBm + 4 dBi
EIRP = 29.02 dBm or 798 mW
Therefore, the minimum safe distance D_{cm} = ([798] / [4π])$^{1/2}$
D_{cm} = 7.97 cm

Test Personnel:	Vathana Ven VSV	Test Date:	09/26/2019
Supervising/Reviewing Engineer: (Where Applicable)	N/A		
Product Standard:	CFR47 FCC Part 15.247	Limit Applied:	See report section 7.3
Input Voltage:	5 VDC (USB)	Ambient Temperature:	22 ºC
Pretest Verification w/ Ambient Signals or BB Source:	**N/A**	Relative Humidity:	62 %
		Atmospheric Pressure:	1010 mbars

Deviations, Additions, or Exclusions: None

8 6 dB Bandwidth and Occupied Bandwidth

8.1 Method

Tests are performed in accordance with CFR47 FCC Part 15.247, ANSI C63.10, and KDB 558074.

TEST SITE: EMC Lab

The EMC Lab has one Semi-anechoic Chamber and one Shielded Chamber. AC Mains Power is available at 120, 230, and 277 Single Phase; 208, 400, and 480 3-Phase. Large reference ground-planes are installed in the general lab area to facilitate EMC work not requiring a shielded environment.

8.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
CEN001'	DC-40GHz attenuator 20dB	Centric RF	C411-20	CEN001	02/01/2019	02/01/2020
CBLHF2012-2M-1'	2m 9kHz-40GHz Coaxial Cable - SET1	Huber & Suhner	SF102	252675001	02/01/2019	02/01/2020
ROS005-1'	Signal and Spectrum Analyzer	Rohde & Schwarz	FSW43	100646	10/15/2018	10/15/2019
DS40'	Temp, humidity, pressure gauge	Digi Sense	68000-49	181717625	11/06/2018	11/06/2019

Software Utilized:

Name	Manufacturer	Version
None	--	--

8.3 Results:

The sample tested was found to Comply.

§15.247 (a) (2) Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Modulation: IEEC 802.11b, Bandwidth: 20 MHz

Channel	Frequency (MHz)	Data Rate (Mbps)	6 dB Bandwidth (MHz)	Occupied Bandwidth (MHz)
Low	2412	1	10.04	14.40
Mid	2442	1	10.05	14.00
High	2462	1	10.06	14.40
Low	2412	2	9.78	14.30
Mid	2442	2	9.85	14.10
High	2462	2	9.83	14.50
Low	2412	5.5	9.58	13.90
Mid	2442	5.5	9.35	13.70
High	2462	5.5	9.46	14.10
Mid	2442	11	9.57	13.70
High	2462	11	9.69	14.20

Modulation: OFDM 802.11g, Bandwidth: 20 MHz

Channel	Frequency (MHz)	Data Rate (Mbps)	6 dB Bandwidth (MHz)	Occupied Bandwidth (MHz)
Low	2412	6	16.32	16.89
Mid	2442	6	16.32	16.80
High	2472	6	16.05	17.10
Low	2412	9	16.16	16.68
Mid	2442	9	16.29	16.50
High	2472	9	16.32	16.90
Low	2412	12	16.35	16.75
Mid	2442	12	16.37	16.50
High	2472	12	16.32	16.70
Low	2412	18	16.37	16.55
Mid	2442	18	16.38	16.50
High	2472	18	16.34	16.80
Low	2412	24	16.37	16.46
Mid	2442	24	16.34	16.40
High	2472	24	16.34	16.60
Low	2412	36	16.33	16.50
Mid	2442	36	16.30	16.60
High	2472	36	16.32	16.40
Low	2412	48	16.36	16.46
Mid	2442	48	16.33	16.40
High	2472	48	16.36	16.60
Low	2412	54	16.30	16.51
Mid	2442	54	15.99	16.40
High	2472	54	16.33	16.60

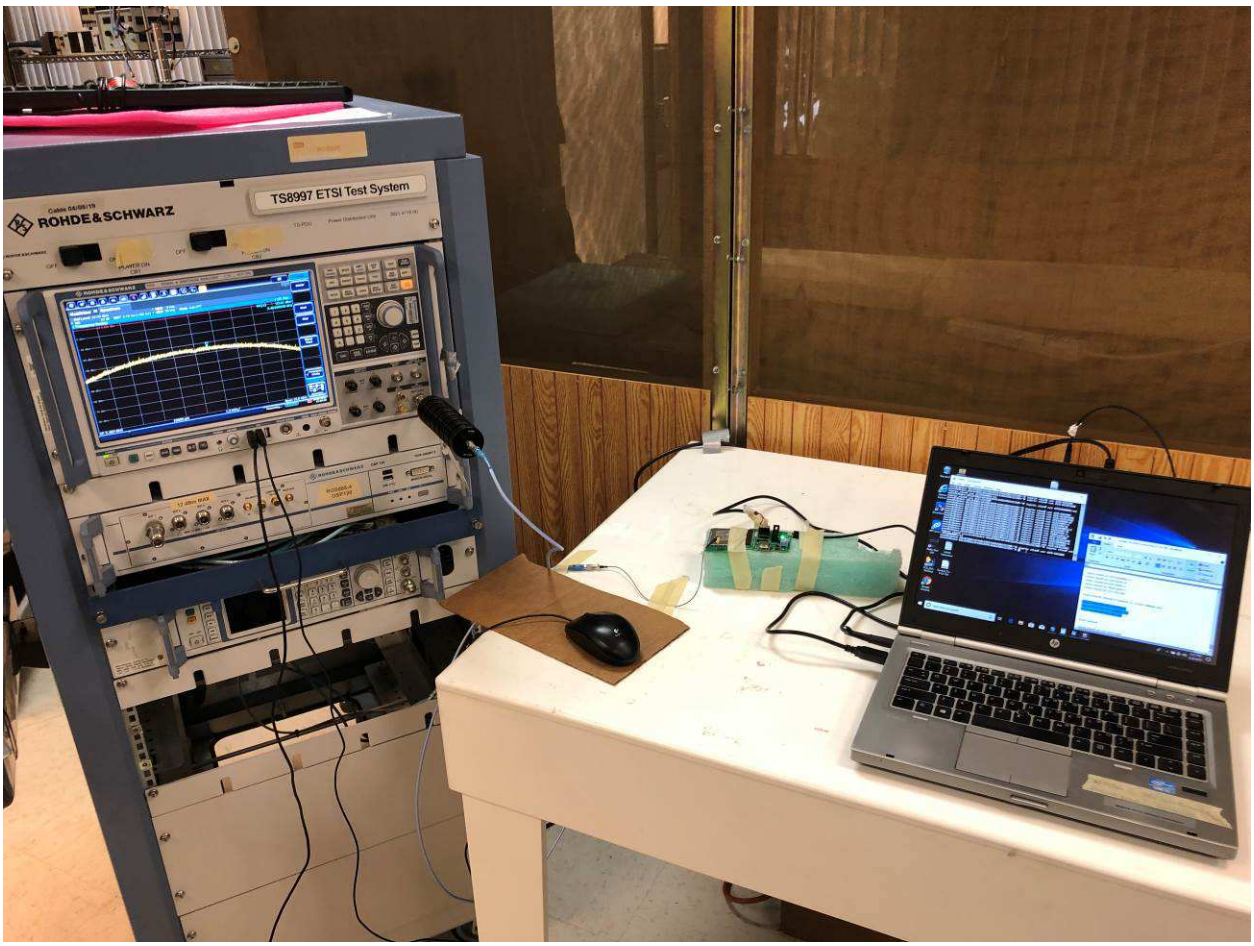
Modulation: IEEC 802.11n HT20, Bandwidth: 20 MHz

Channel	Frequency (MHz)	Data Rate (Mbps)	6 dB Bandwidth (MHz)	Occupied Bandwidth (MHz)
Low	2412	MCS0	17.53	17.81
Mid	2442	MCS0	17.53	17.87
High	2462	MCS0	17.53	17.51
Low	2412	MCS1	17.61	17.69
Mid	2442	MCS1	17.62	17.73
High	2462	MCS1	17.55	17.49
Low	2412	MCS2	17.58	17.67
Mid	2442	MCS2	17.61	17.68
High	2462	MCS2	17.58	17.71
Low	2412	MCS3	17.54	17.62
Mid	2442	MCS3	17.58	17.63
High	2462	MCS3	17.65	17.60
Low	2412	MCS4	17.58	17.59
Mid	2442	MCS4	17.59	17.63
High	2462	MCS4	17.63	17.61
Low	2412	MCS5	17.60	17.60
Mid	2442	MCS5	17.62	17.61
High	2462	MCS5	17.66	17.60
Low	2412	MCS6	17.60	17.54
Mid	2442	MCS6	17.66	17.54
High	2462	MCS6	17.61	17.56
Low	2412	MCS7	17.51	17.56
Mid	2442	MCS7	17.53	17.56
High	2462	MCS7	17.44	17.54

Modulation: IEEC 802.11n HT40, Bandwidth: 40 MHz

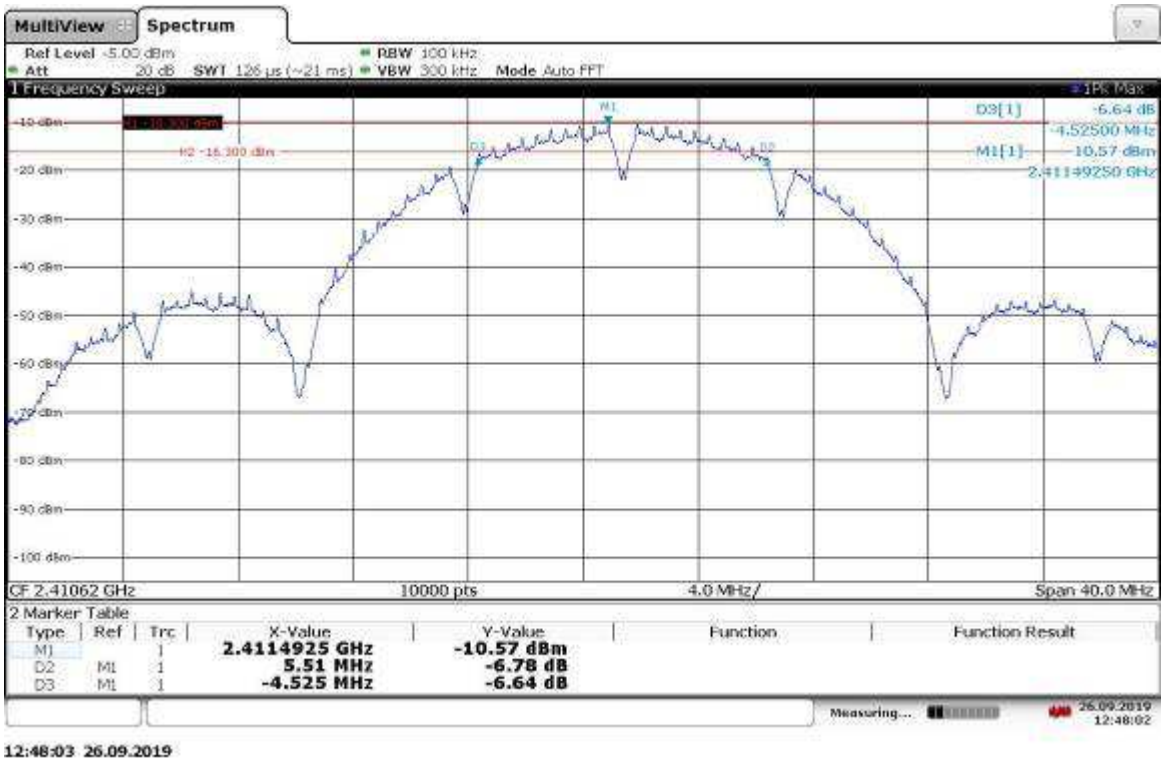
Channel	Frequency (MHz)	Data Rate (Mbps)	6 dB Bandwidth (MHz)	Occupied Bandwidth (MHz)
Low	2412	MCS0	36.26	36.96
Mid	2442	MCS0	36.26	37.16
High	2462	MCS0	36.27	36.88
Low	2412	MCS1	36.30	36.66
Mid	2442	MCS1	36.30	36.80
High	2462	MCS1	36.26	36.62
Low	2412	MCS2	36.27	36.50
Mid	2442	MCS2	36.33	36.74
High	2462	MCS2	36.36	36.68
Low	2412	MCS3	36.33	36.49
Mid	2442	MCS3	36.22	36.51
High	2462	MCS3	36.31	36.12
Low	2412	MCS4	36.26	36.39
Mid	2442	MCS4	36.30	36.15
High	2462	MCS4	35.98	36.36
Low	2412	MCS5	36.22	36.43
Mid	2442	MCS5	36.27	36.49
High	2462	MCS5	36.31	36.35
Low	2412	MCS6	36.28	36.14
Mid	2442	MCS6	36.27	36.22
High	2462	MCS6	36.23	36.12
Low	2412	MCS7	35.93	36.10
Mid	2442	MCS7	36.25	36.20
High	2462	MCS7	36.32	36.10

8.4 Setup Photograph:



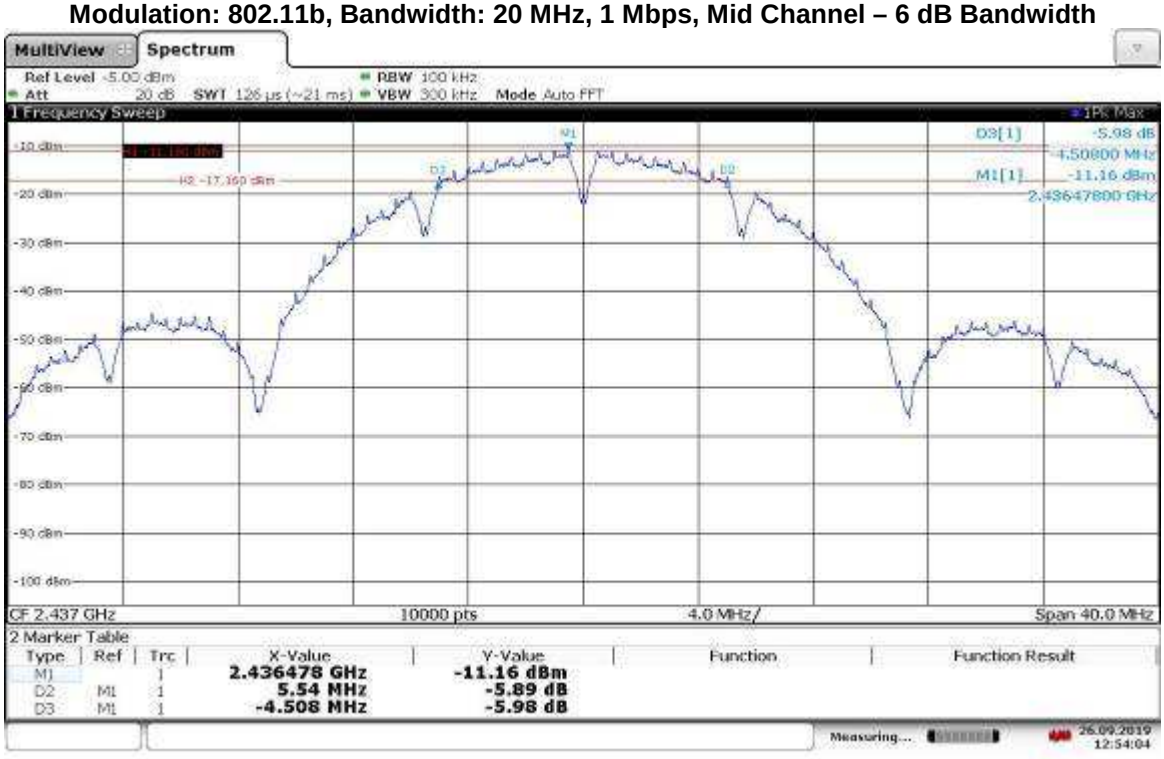
8.5 Plots/Data:

Modulation: 802.11b, Bandwidth: 20 MHz, 1 Mbps, Low Channel – 6 dB Bandwidth



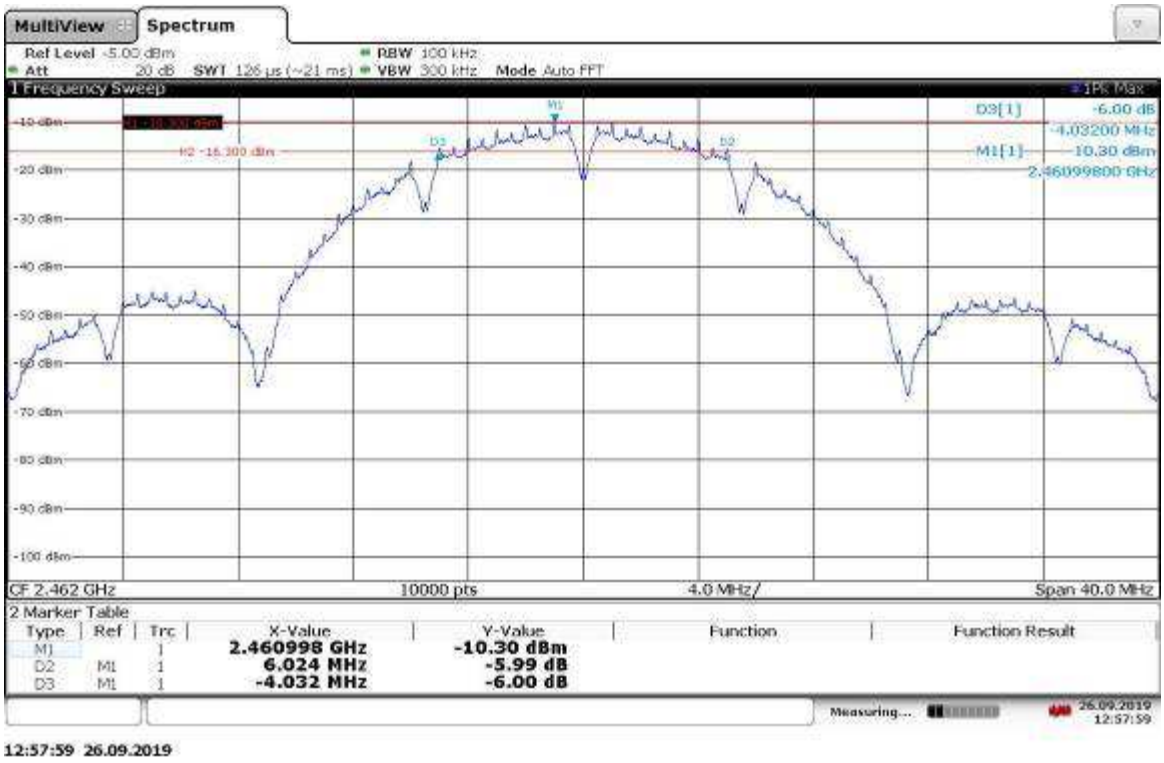
12:48:03 26.09.2019

Modulation: 802.11b, Bandwidth: 20 MHz, 1 Mbps, Mid Channel – 6 dB Bandwidth



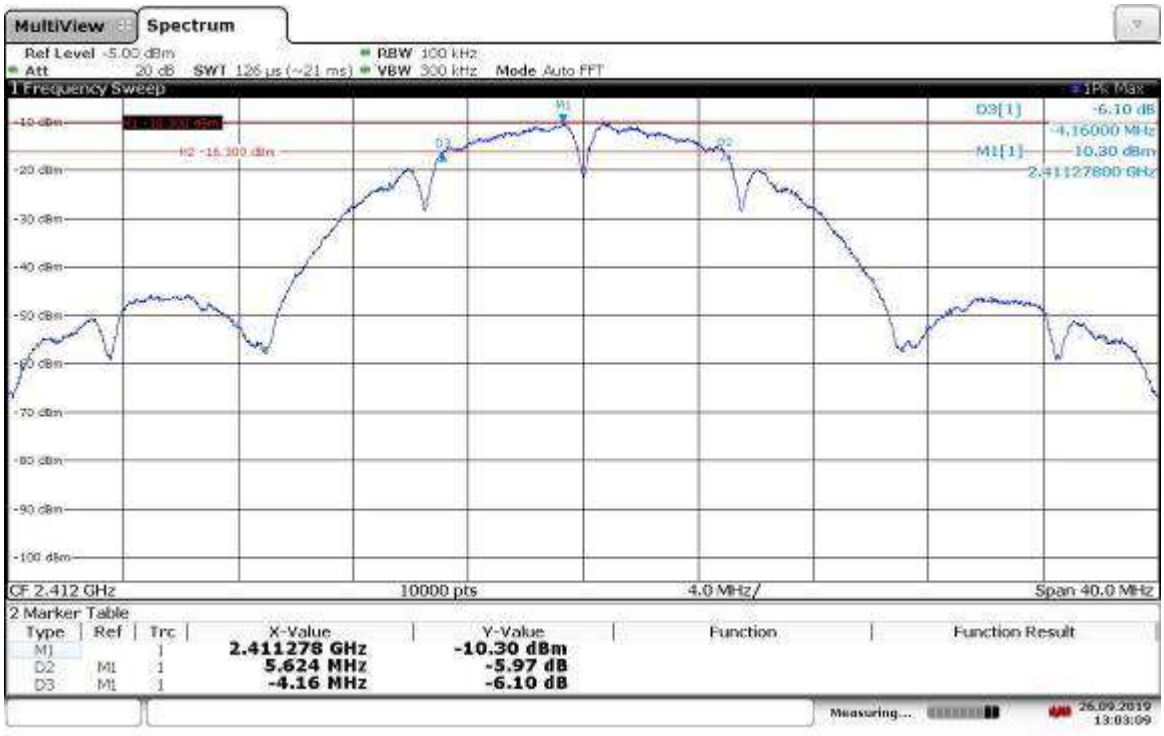
12:54:04 26.09.2019

Modulation: 802.11b, Bandwidth: 20 MHz, 1 Mbps, High Channel – 6 dB Bandwidth



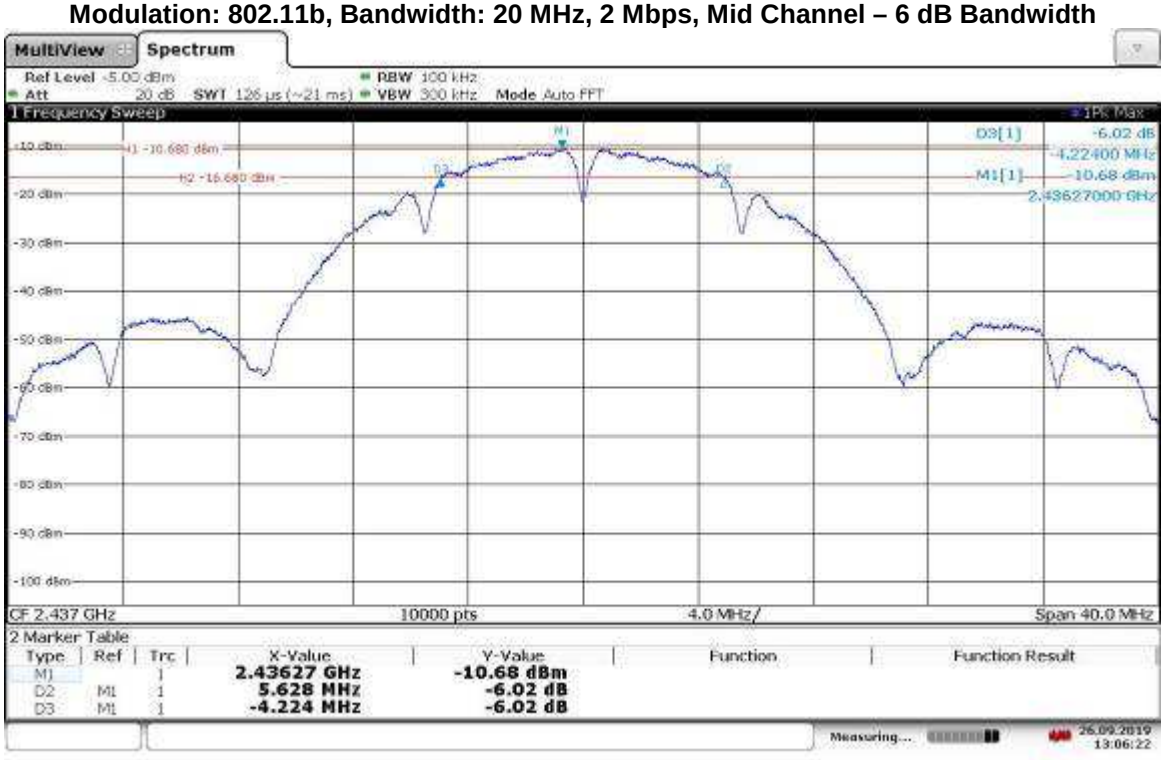
12:57:59 26.09.2019

Modulation: 802.11b, Bandwidth: 20 MHz, 2 Mbps, Low Channel – 6 dB Bandwidth



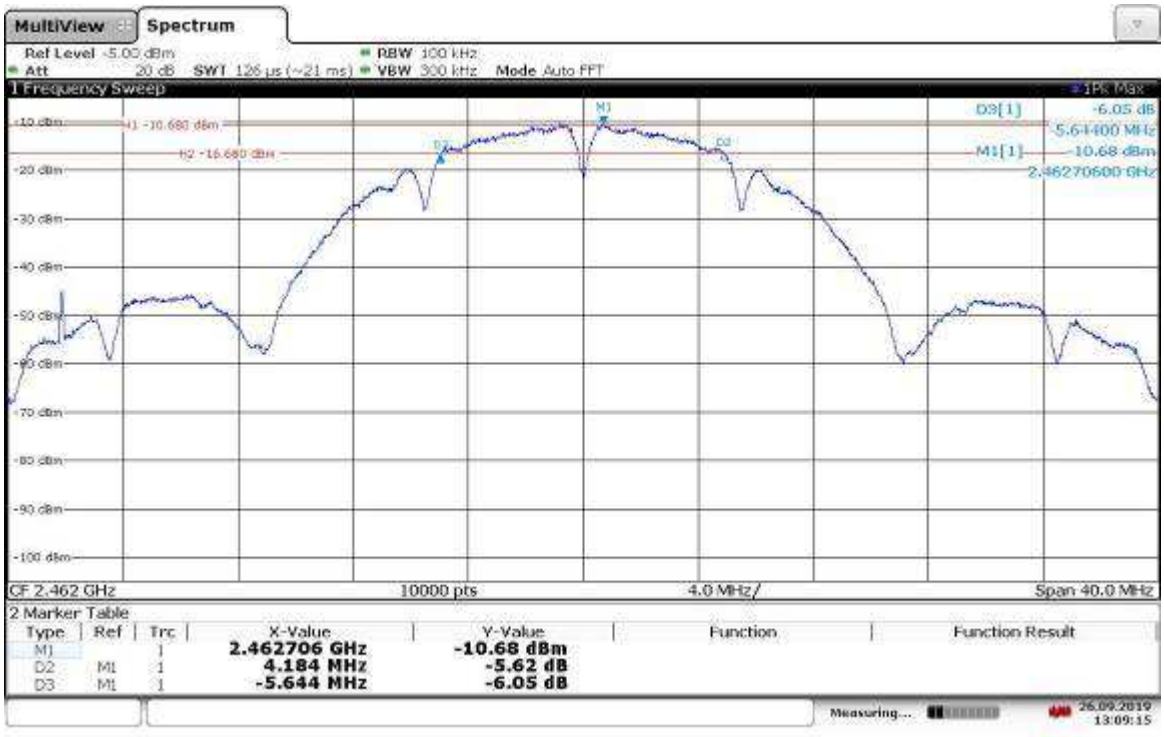
13:03:10 26.09.2019

Modulation: 802.11b, Bandwidth: 20 MHz, 2 Mbps, Mid Channel – 6 dB Bandwidth



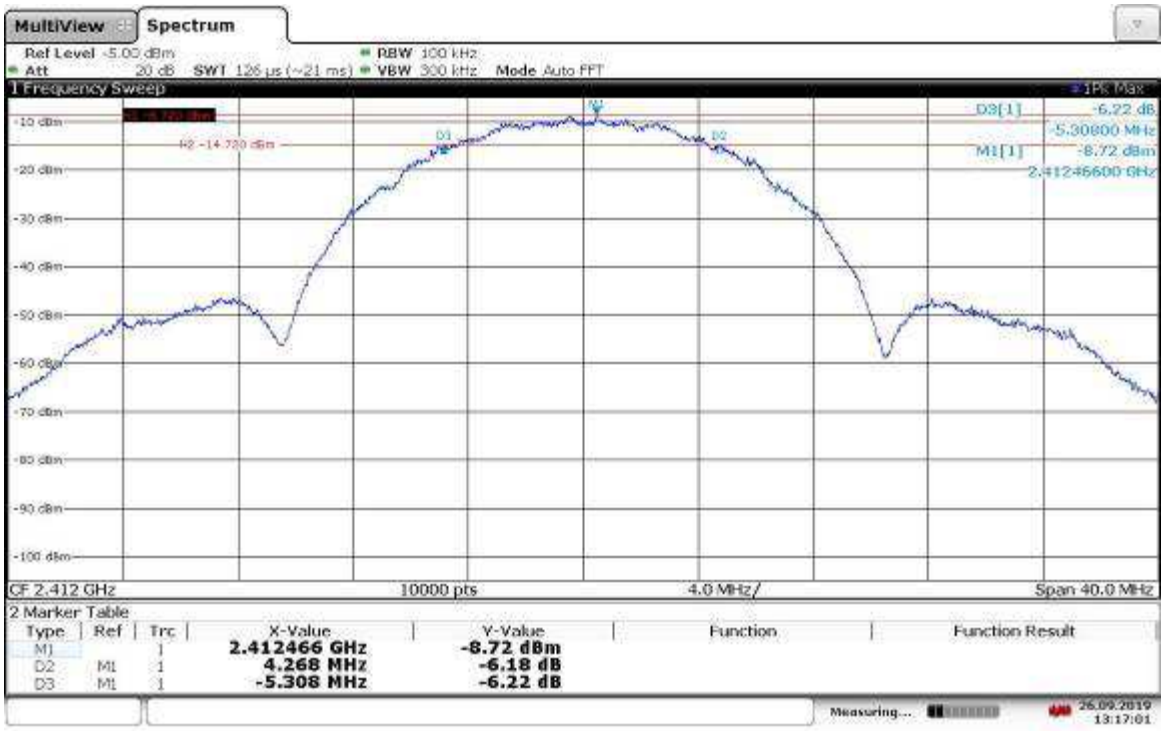
13:06:22 26.09.2019

Modulation: 802.11b, Bandwidth: 20 MHz, 2 Mbps, High Channel – 6 dB Bandwidth



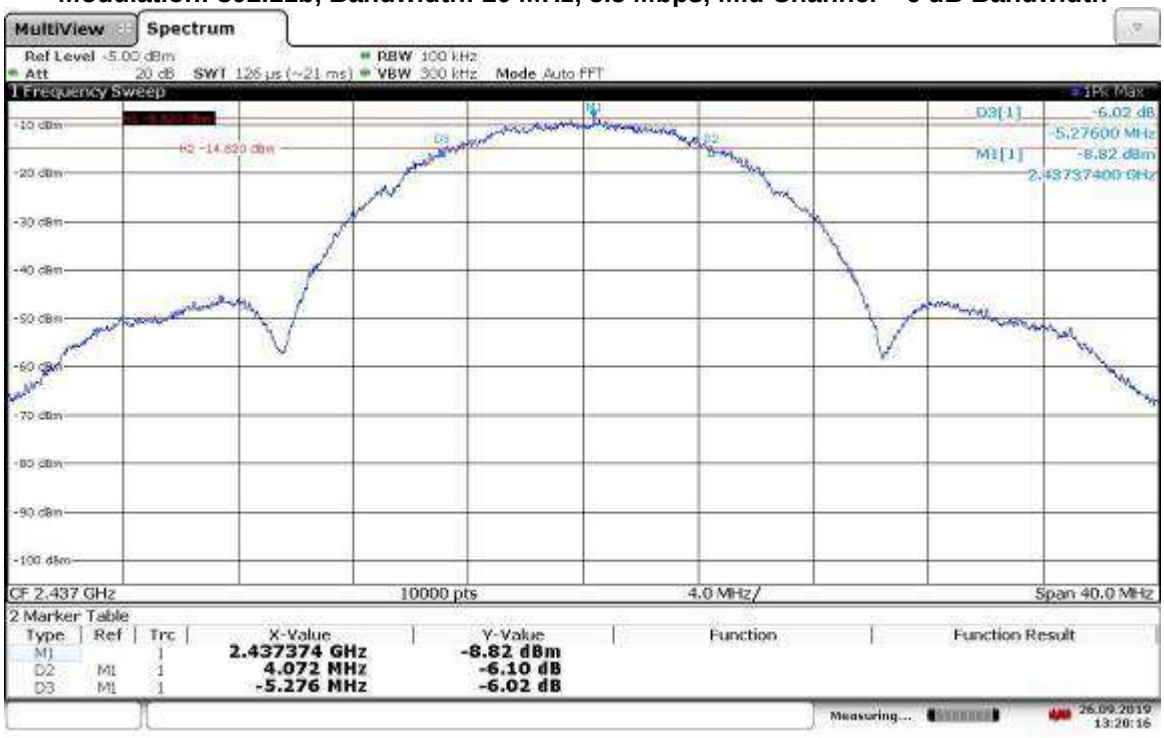
13:09:16 26.09.2019

Modulation: 802.11b, Bandwidth: 20 MHz, 5.5 Mbps, Low Channel – 6 dB Bandwidth



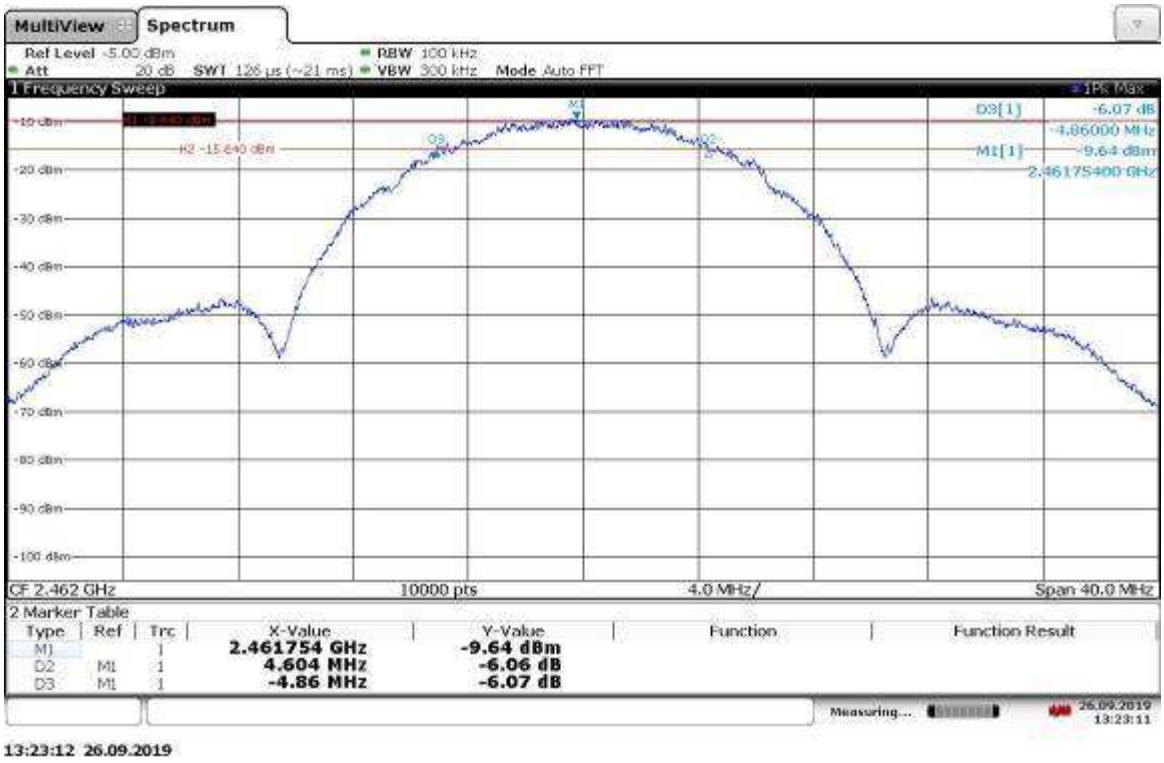
13:17:02 26.09.2019

Modulation: 802.11b, Bandwidth: 20 MHz, 5.5 Mbps, Mid Channel – 6 dB Bandwidth



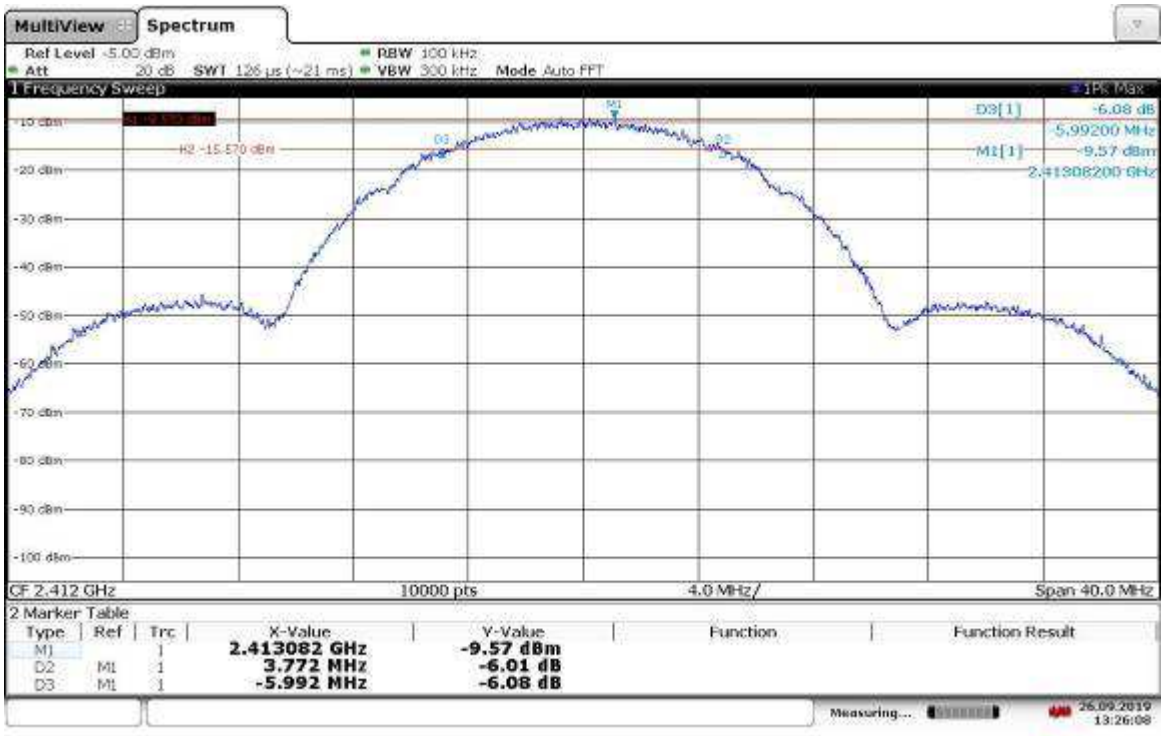
13:20:16 26.09.2019

Modulation: 802.11b, Bandwidth: 20 MHz, 5.5 Mbps, High Channel – 6 dB Bandwidth



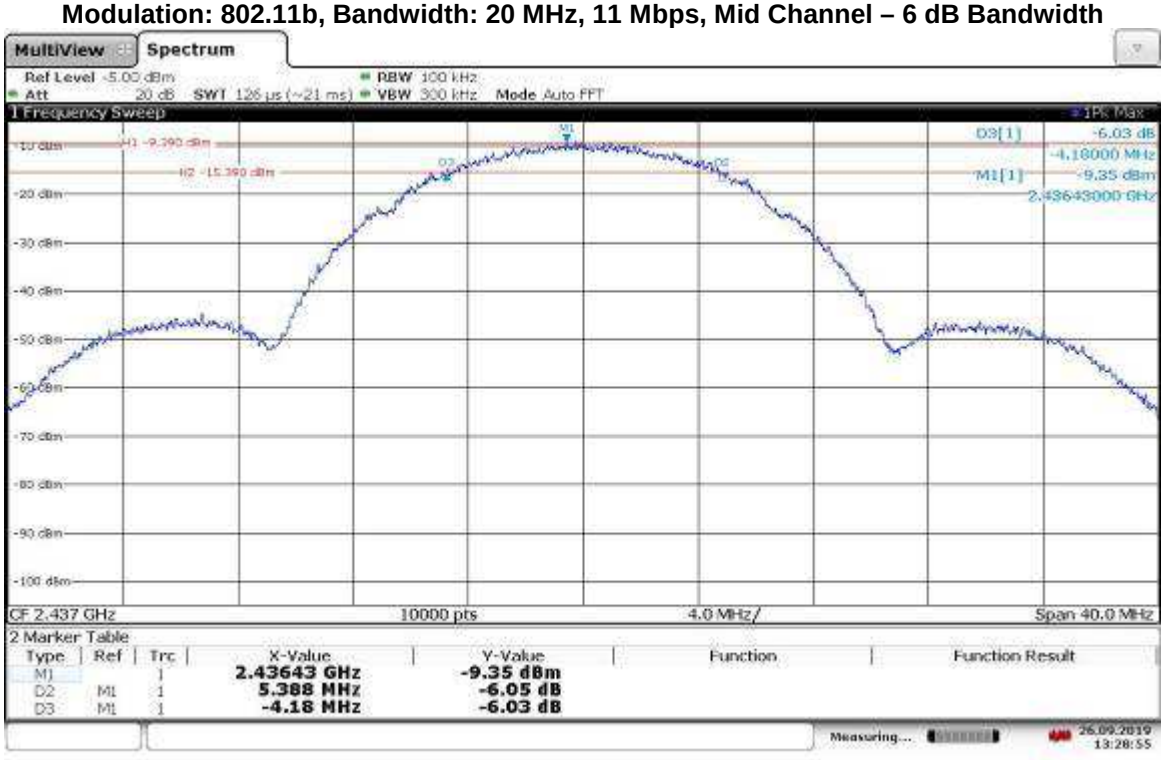
13:23:12 26.09.2019

Modulation: 802.11b, Bandwidth: 20 MHz, 11 Mbps, Low Channel – 6 dB Bandwidth



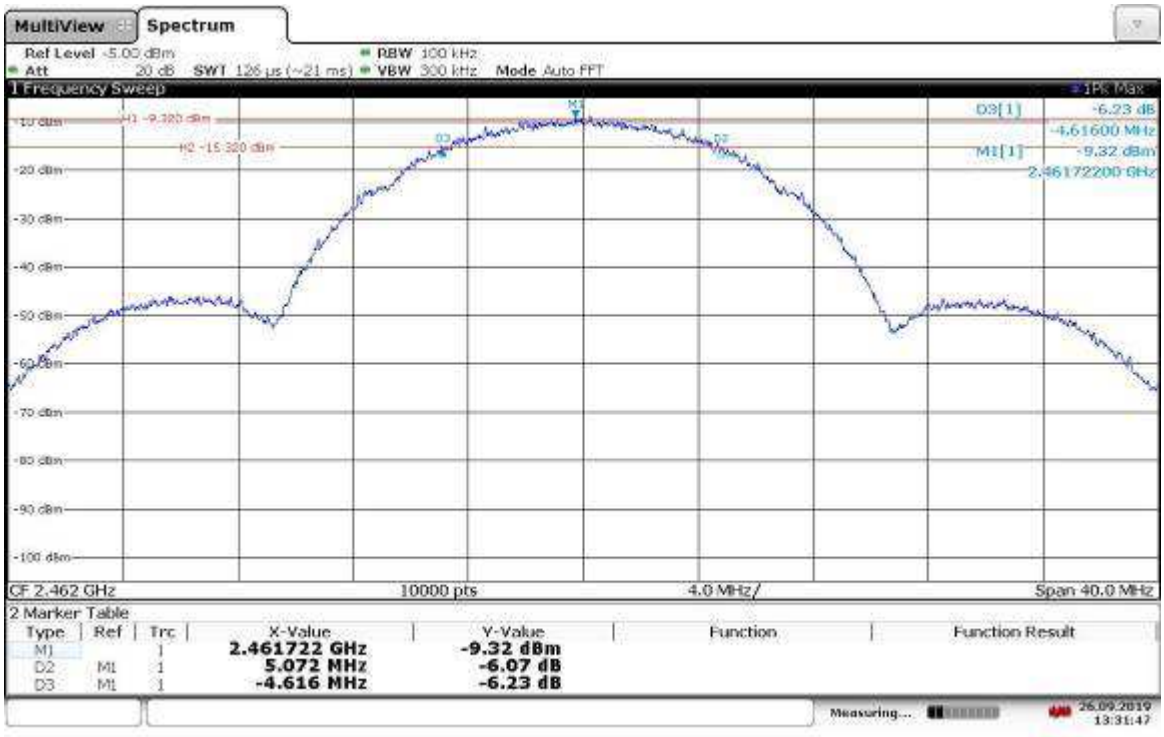
13:26:09 26.09.2019

Modulation: 802.11b, Bandwidth: 20 MHz, 11 Mbps, Mid Channel – 6 dB Bandwidth



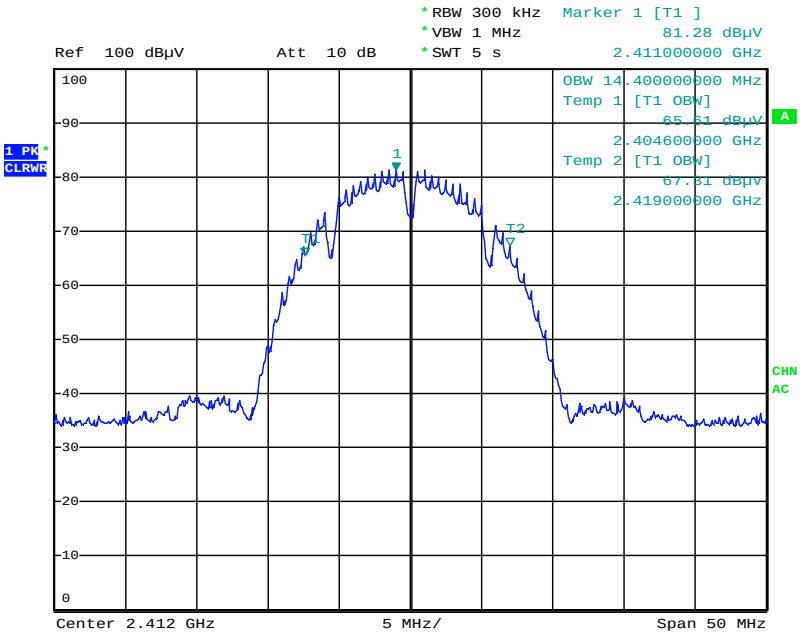
13:28:55 26.09.2019

Modulation: 802.11b, Bandwidth: 20 MHz, 11 Mbps, High Channel – 6 dB Bandwidth



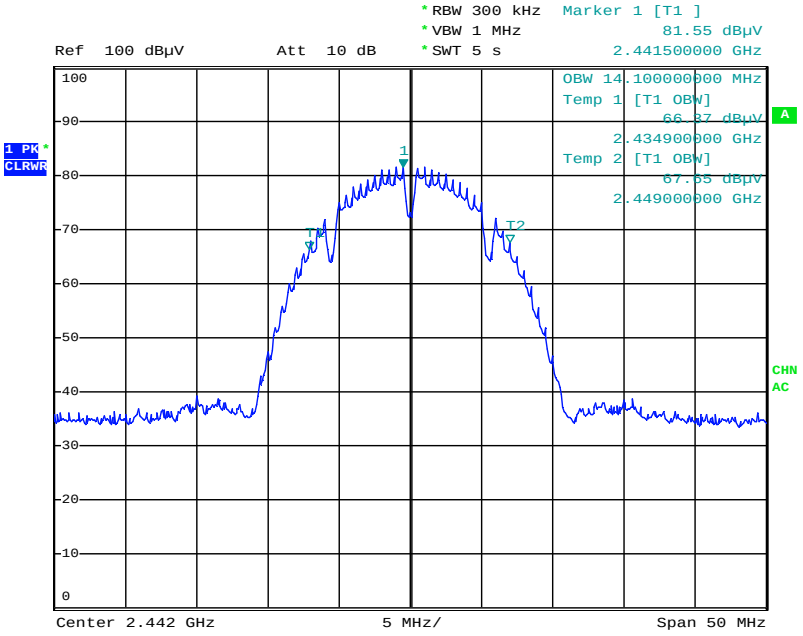
13:31:47 26.09.2019

Modulation: 802.11b, Bandwidth: 20 MHz, 1 Mbps, Low Channel – Occupied Bandwidth



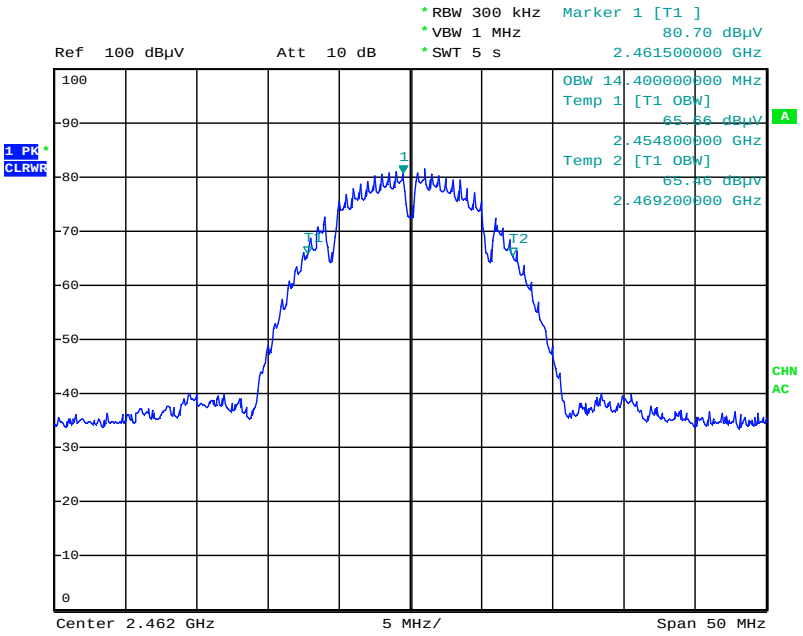
Date: 25.SEP.2019 20:34:35

Modulation: 802.11b, Bandwidth: 20 MHz, 1 Mbps, Mid Channel – Occupied Bandwidth



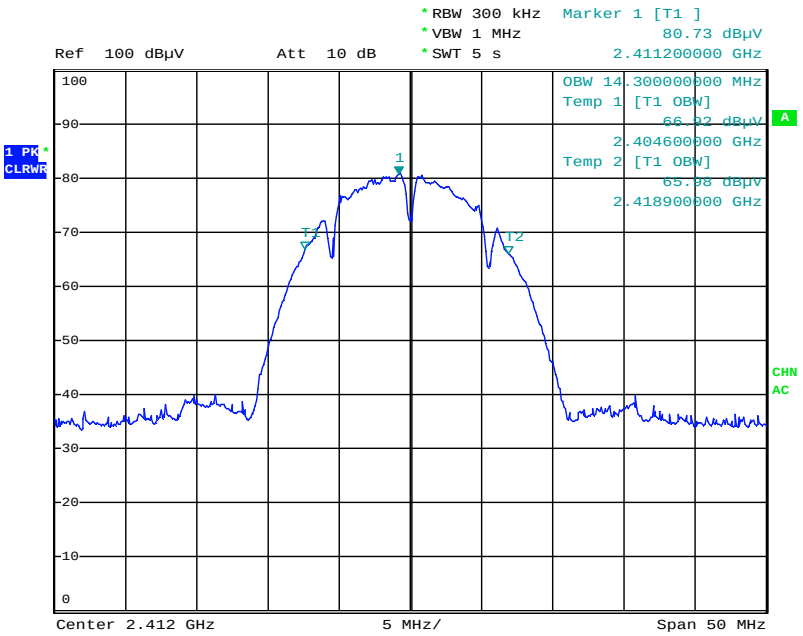
Date: 25.SEP.2019 20:33:39

Modulation: 802.11b, Bandwidth: 20 MHz, 1 Mbps, High Channel – Occupied Bandwidth



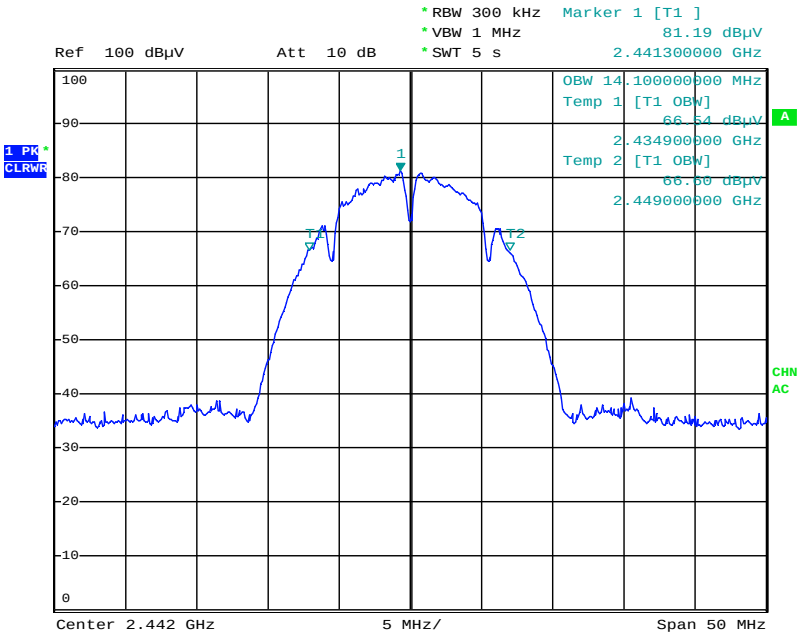
Date: 25.SEP.2019 20:32:15

Modulation: 802.11b, Bandwidth: 20 MHz, 2 Mbps, Low Channel – Occupied Bandwidth



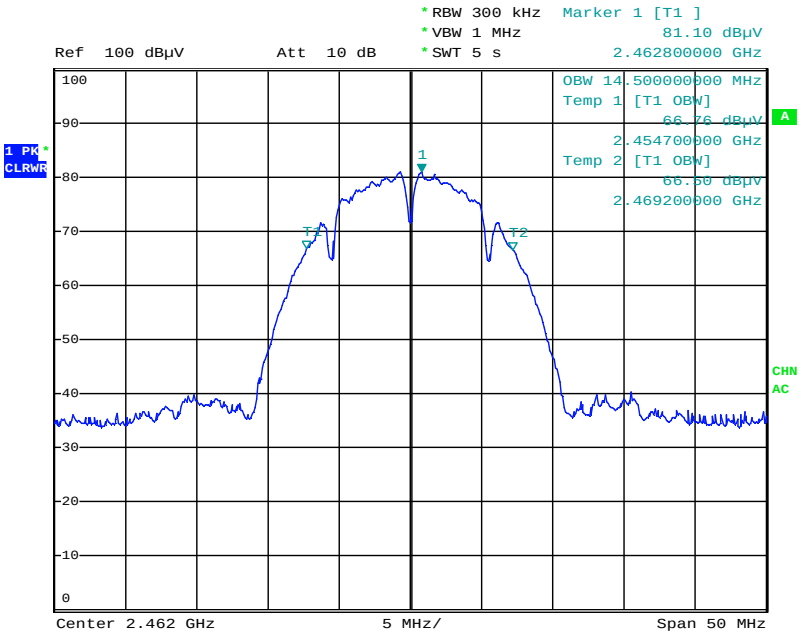
Date: 25.SEP.2019 20:41:35

Modulation: 802.11b, Bandwidth: 20 MHz, 2 Mbps, Mid Channel – Occupied Bandwidth



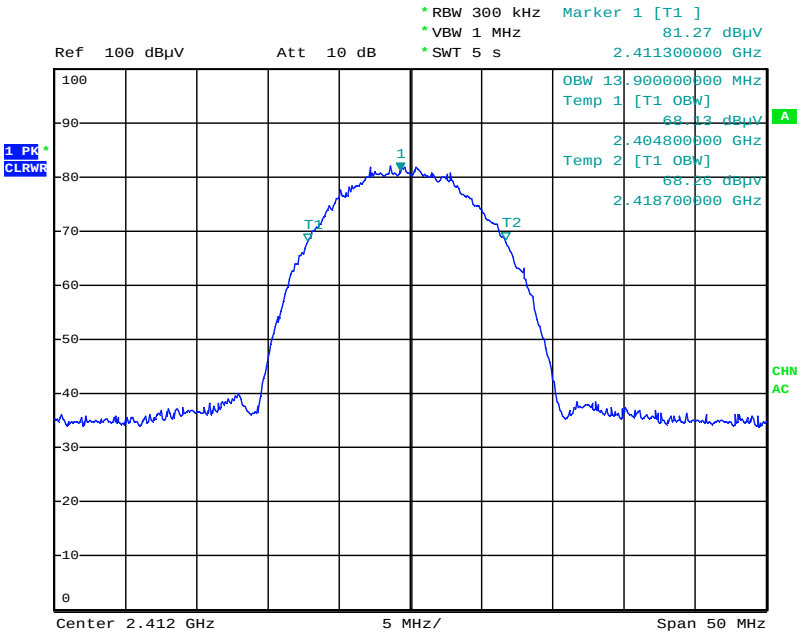
Date: 25.SEP.2019 20:42:35

Modulation: 802.11b, Bandwidth: 20 MHz, 2 Mbps, High Channel – Occupied Bandwidth



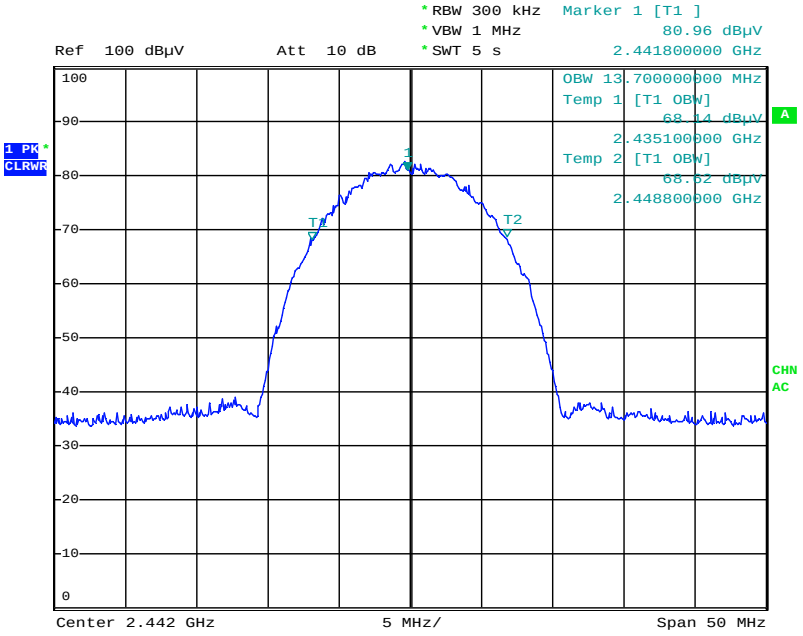
Date: 25.SEP.2019 20:43:47

Modulation: 802.11b, Bandwidth: 20 MHz, 5.5 Mbps, Low Channel – Occupied Bandwidth



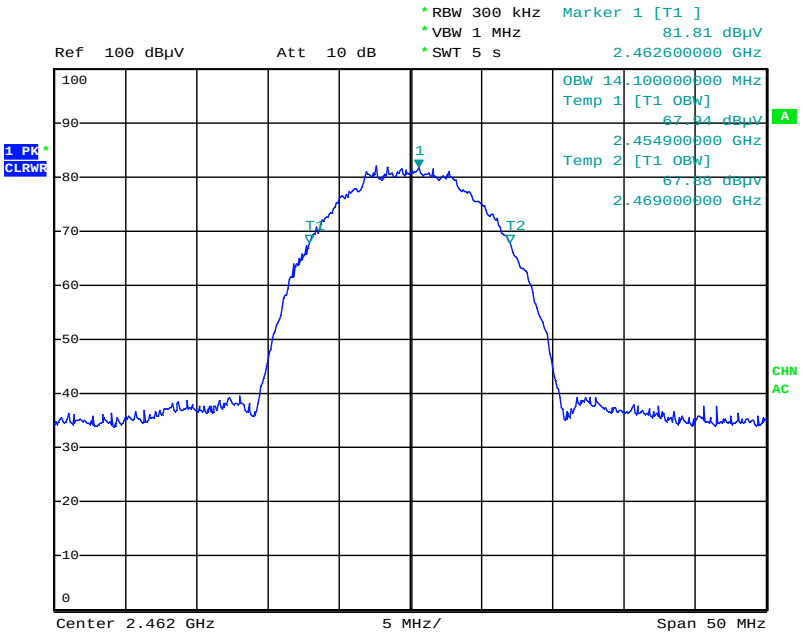
Date: 25.SEP.2019 20:49:44

Modulation: 802.11b, Bandwidth: 20 MHz, 5.5 Mbps, Mid Channel – Occupied Bandwidth



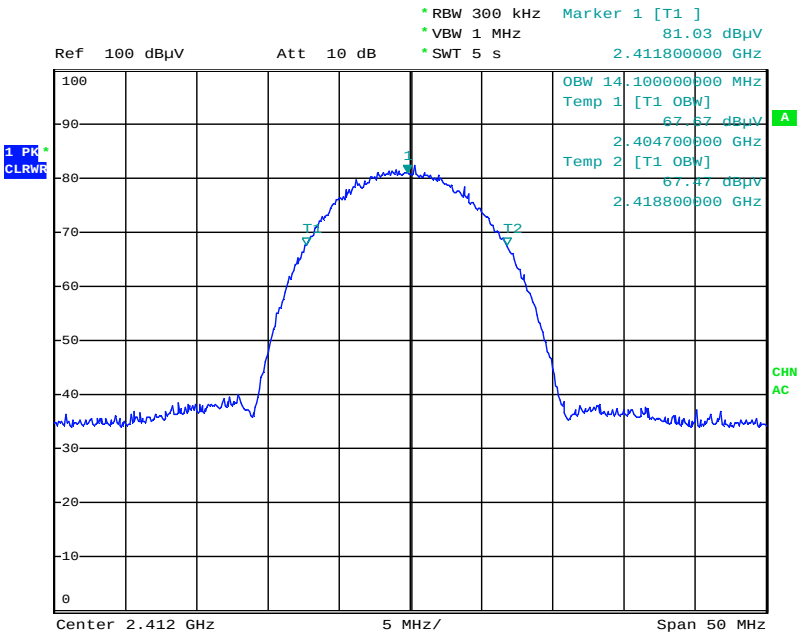
Date: 25.SEP.2019 20:48:45

Modulation: 802.11b, Bandwidth: 20 MHz, 5.5 Mbps, High Channel – Occupied Bandwidth



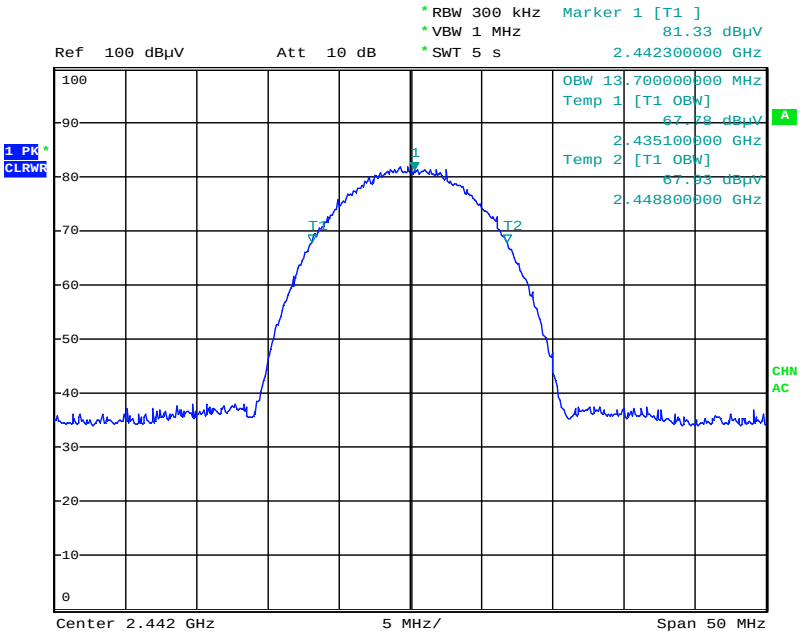
Date: 25.SEP.2019 20:47:52

Modulation: 802.11b, Bandwidth: 20 MHz, 11 Mbps, Low Channel – Occupied Bandwidth



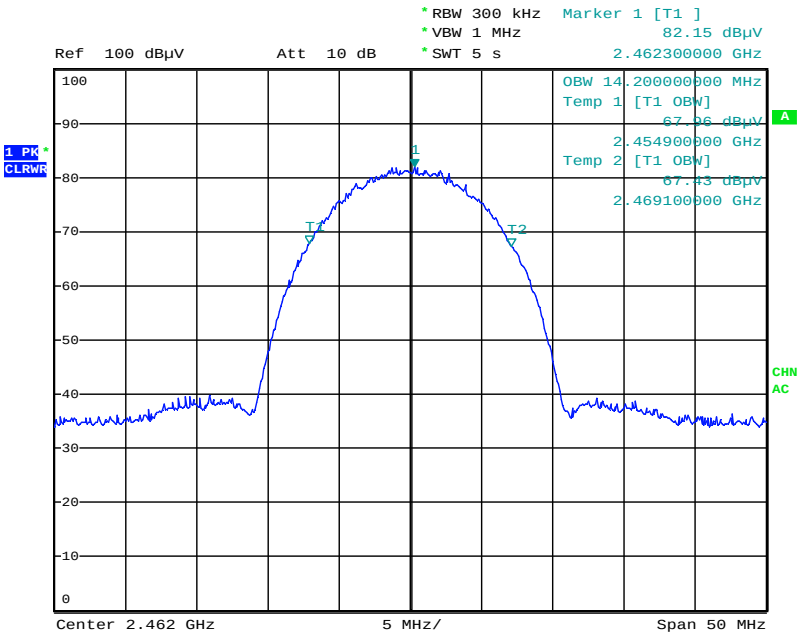
Date: 25.SEP.2019 20:54:21

Modulation: 802.11b, Bandwidth: 20 MHz, 11 Mbps, Mid Channel – Occupied Bandwidth



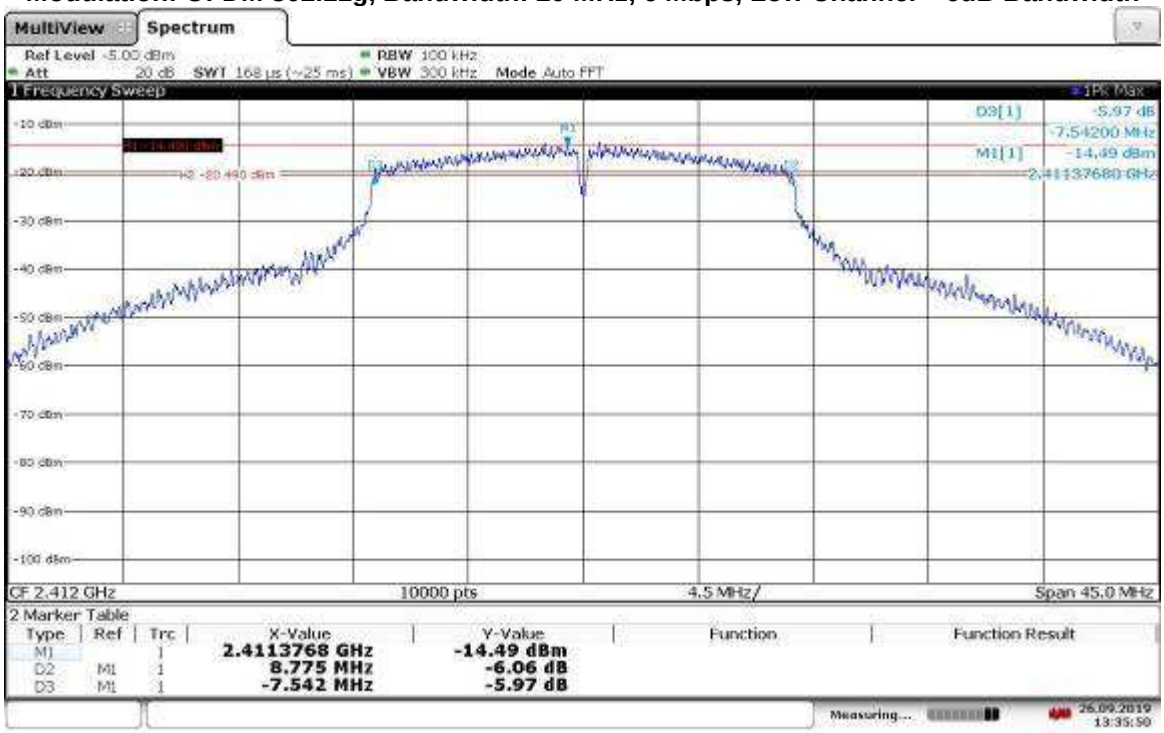
Date: 25.SEP.2019 20:55:18

Modulation: 802.11b, Bandwidth: 20 MHz, 11 Mbps, High Channel – Occupied Bandwidth



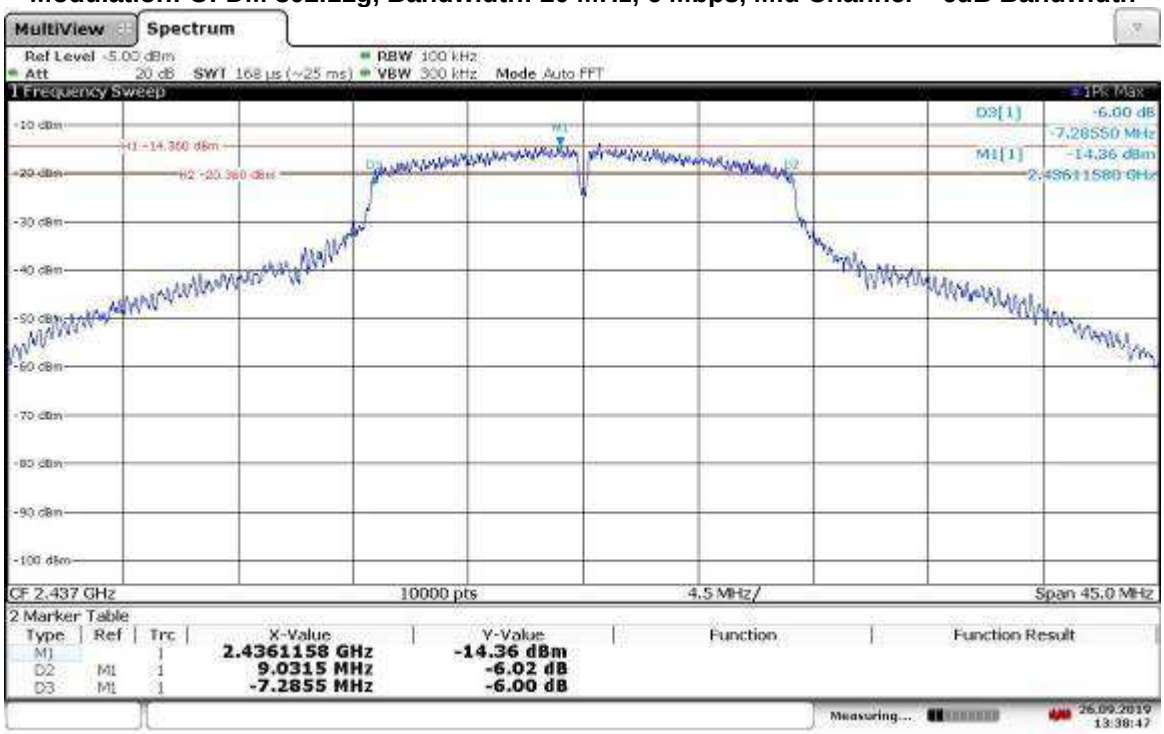
Date: 25.SEP.2019 20:56:04

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 6 Mbps, Low Channel – 6dB Bandwidth



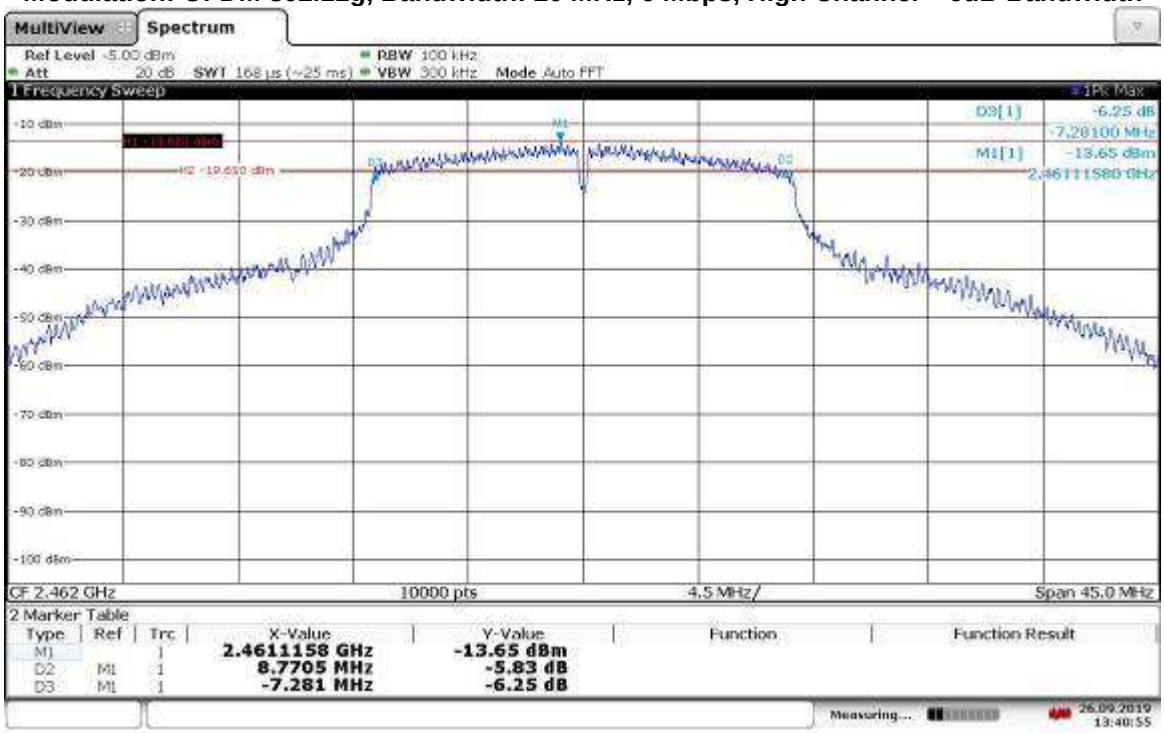
13:35:50 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 6 Mbps, Mid Channel – 6dB Bandwidth



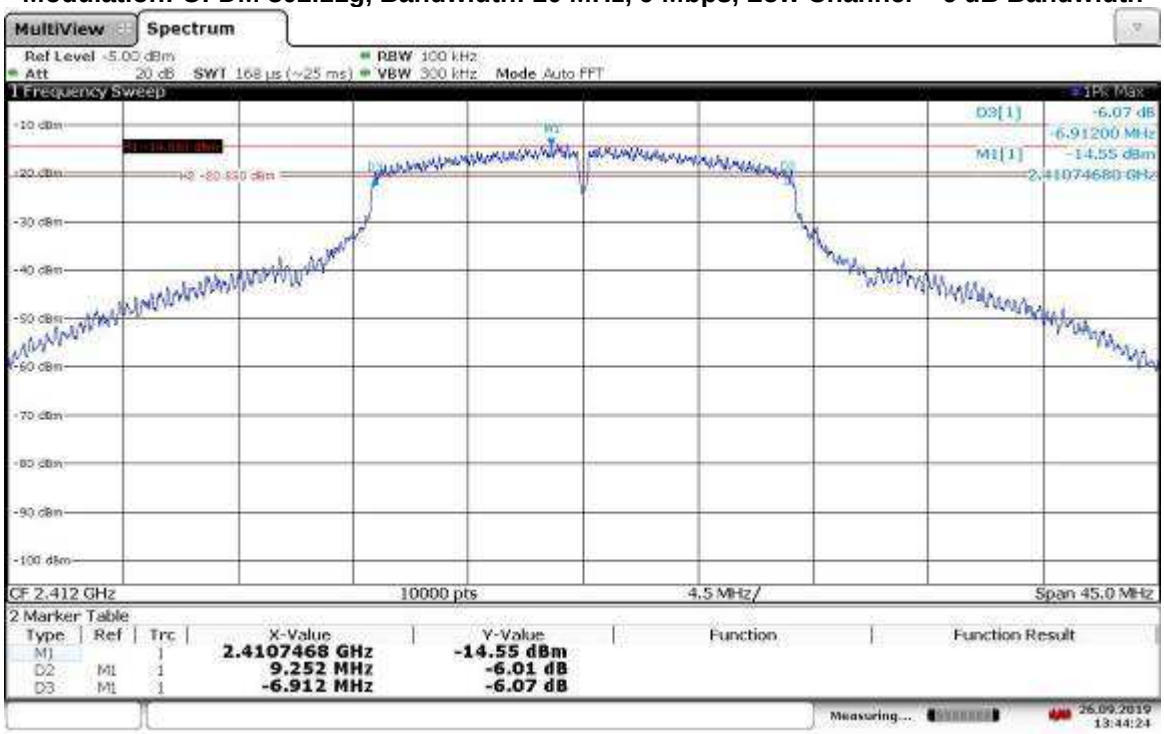
13:38:47 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 6 Mbps, High Channel – 6dB Bandwidth



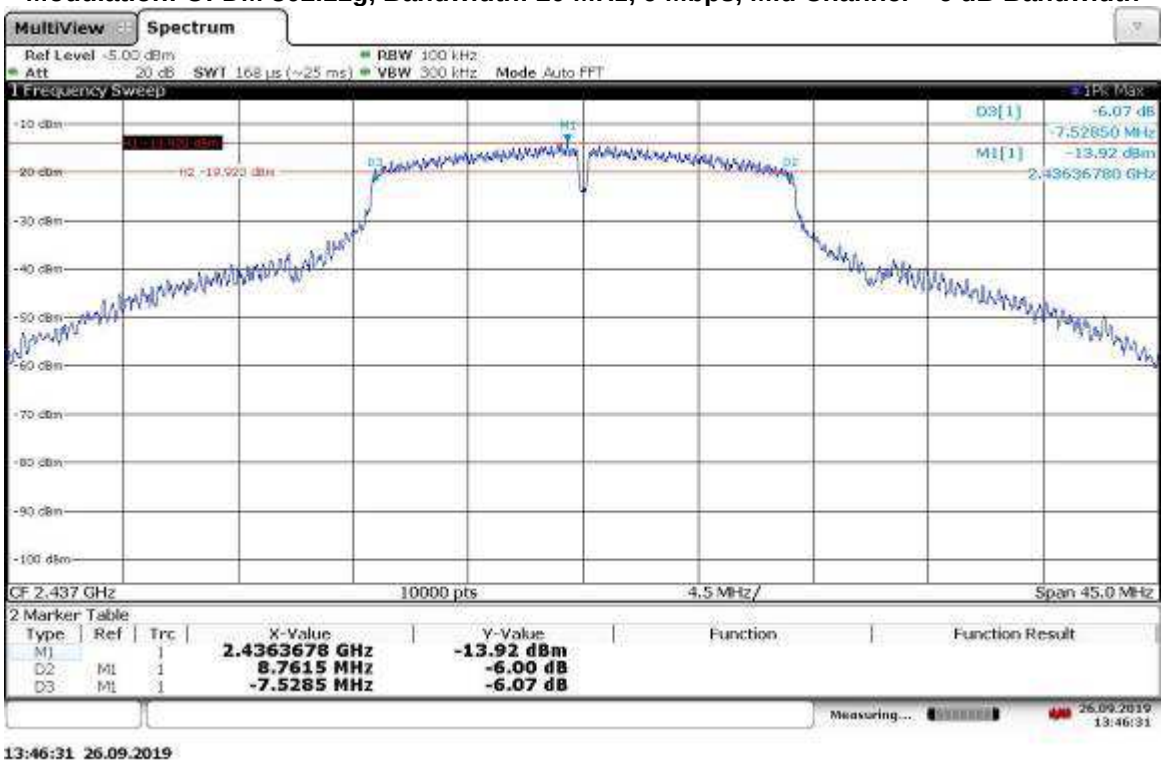
13:40:55 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 9 Mbps, Low Channel – 6 dB Bandwidth



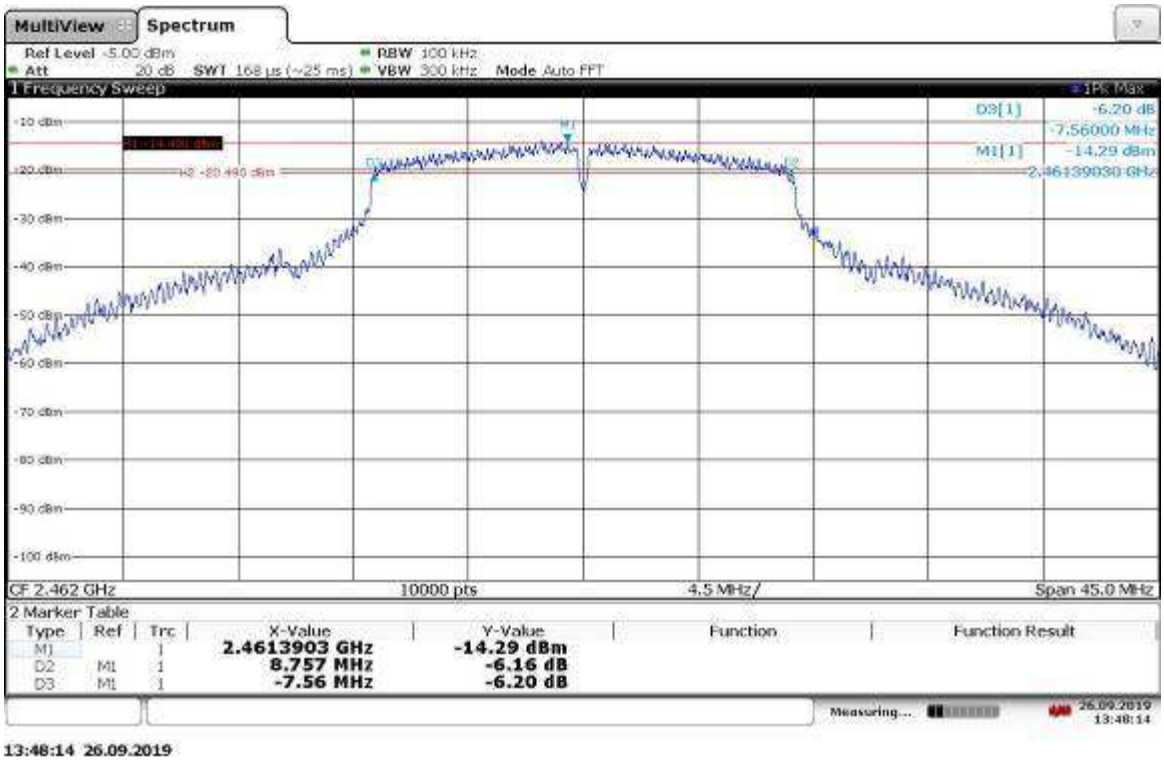
13:44:25 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 9 Mbps, Mid Channel – 6 dB Bandwidth



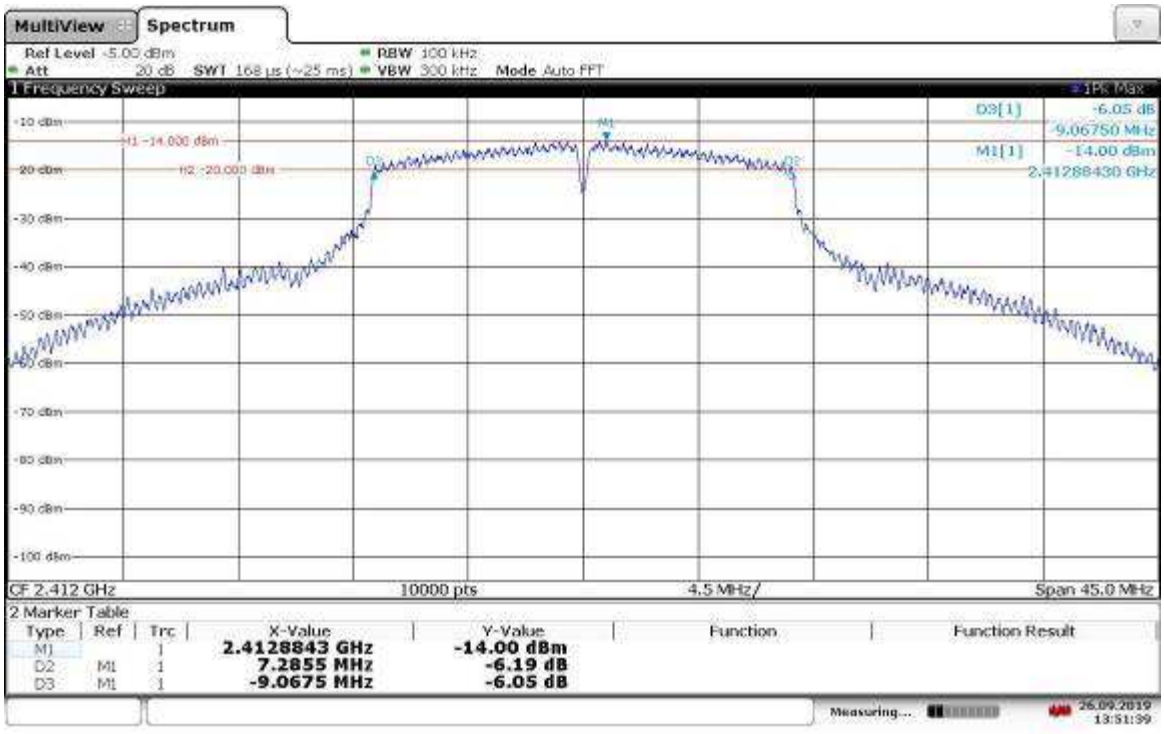
13:46:31 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 9 Mbps, High Channel– 6 dB Bandwidth



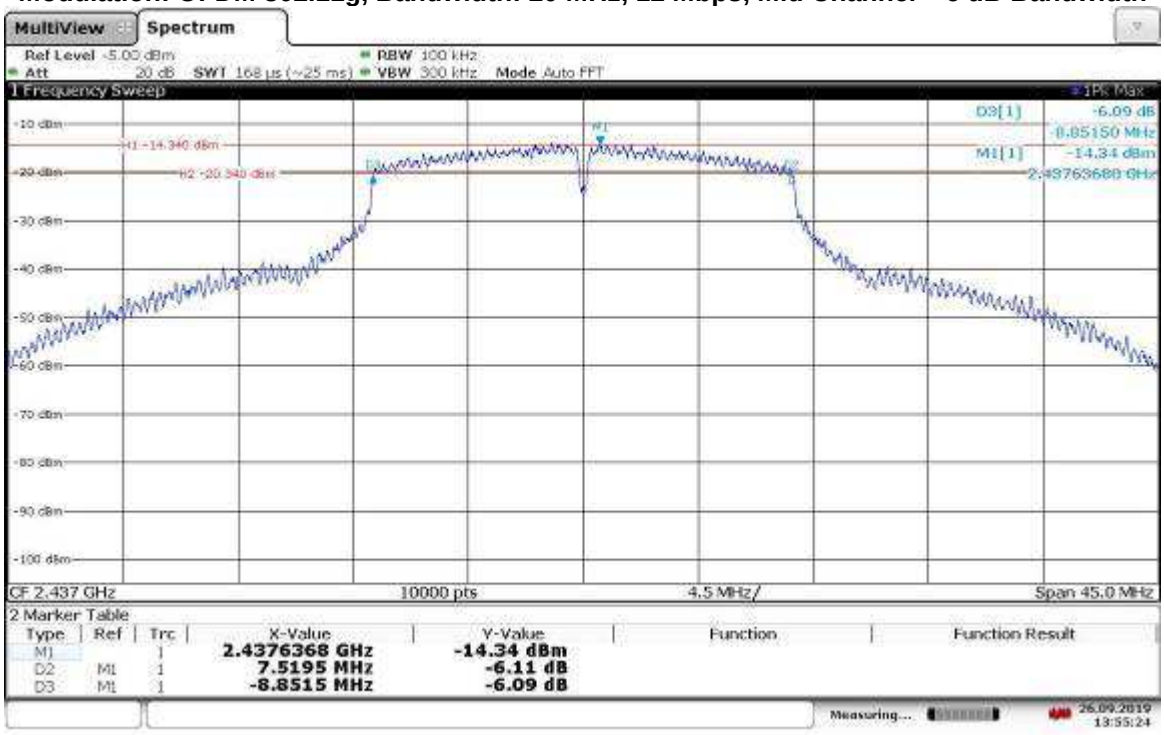
13:48:14 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 12 Mbps, Low Channel – 6 dB Bandwidth



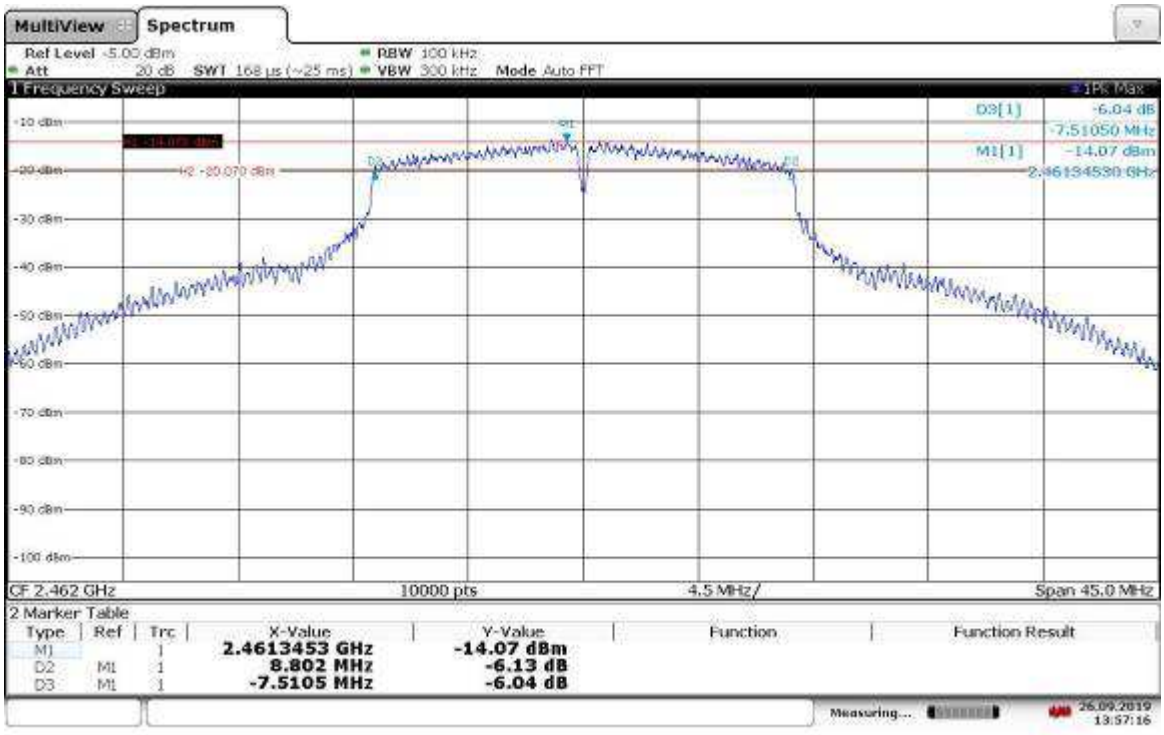
13:51:40 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 12 Mbps, Mid Channel – 6 dB Bandwidth



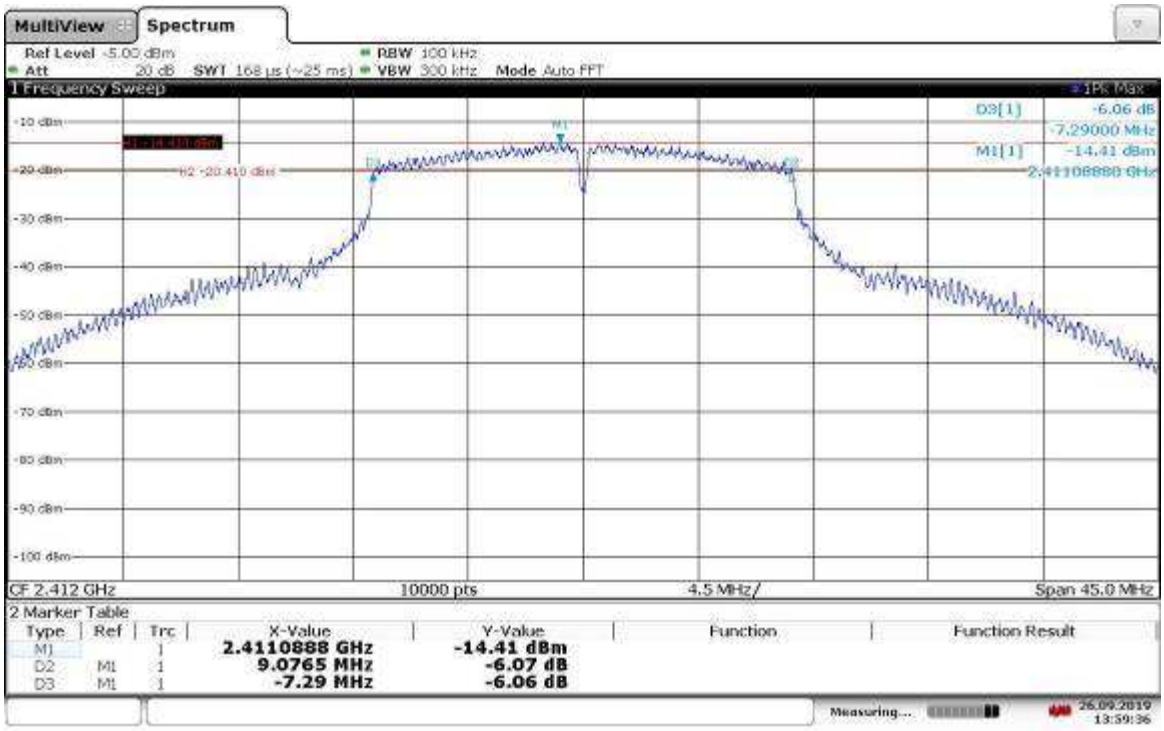
13:55:25 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 12 Mbps, High Channel– 6 dB Bandwidth



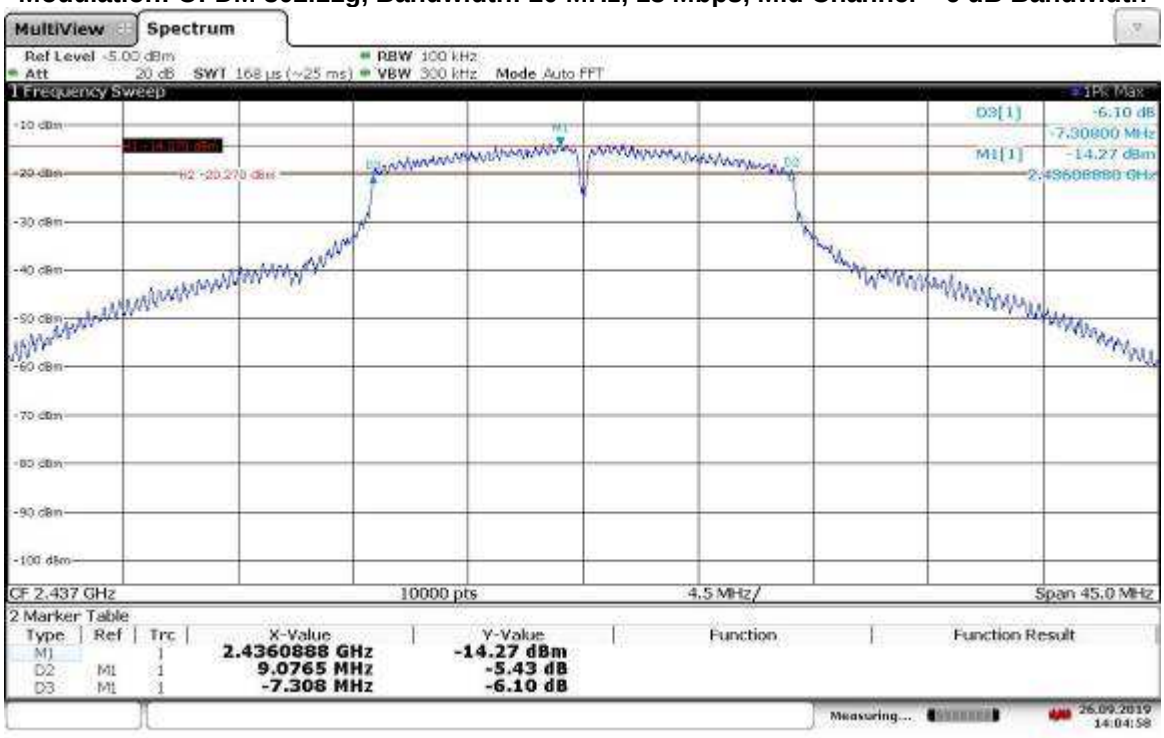
13:57:17 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 18 Mbps, Low Channel – 6 dB Bandwidth



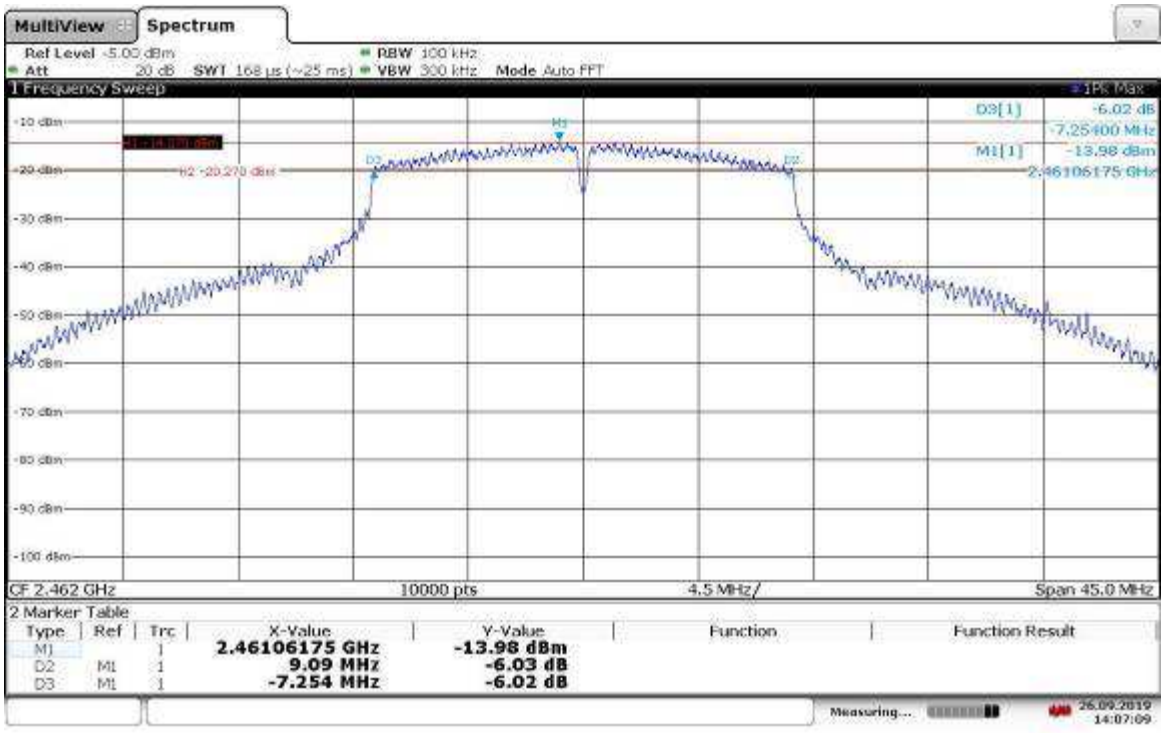
13:59:37 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 18 Mbps, Mid Channel – 6 dB Bandwidth



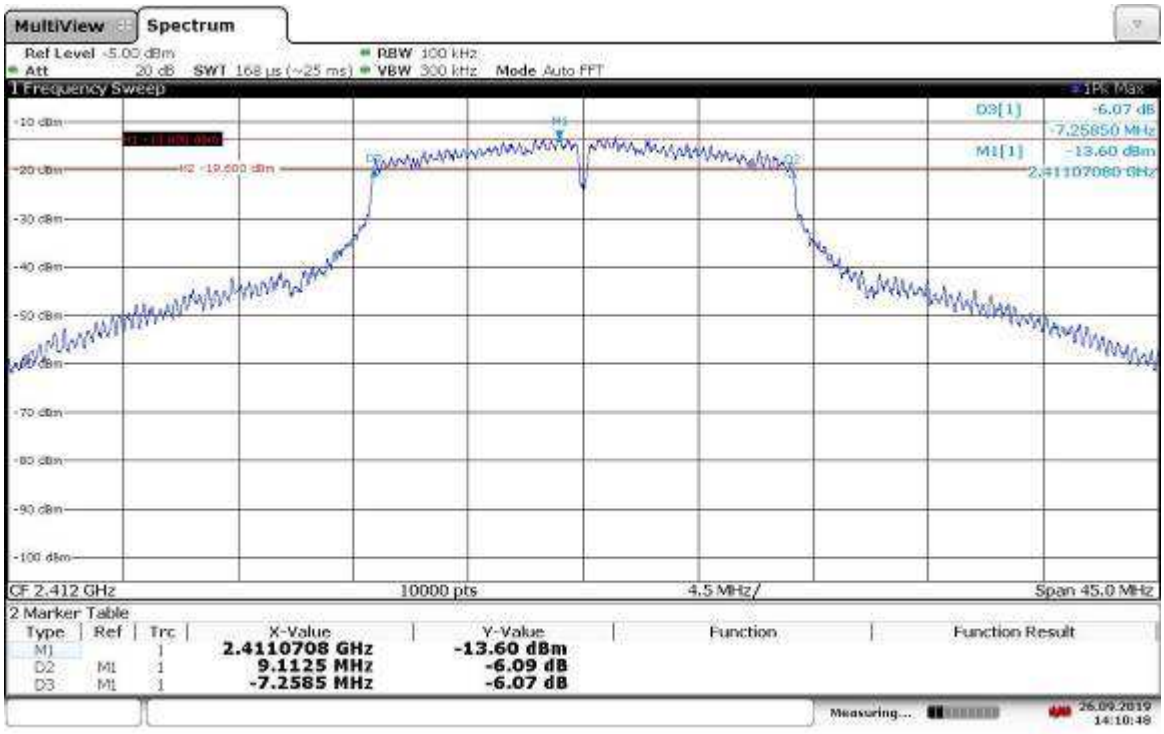
14:04:59 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 18 Mbps, High Channel– 6 dB Bandwidth



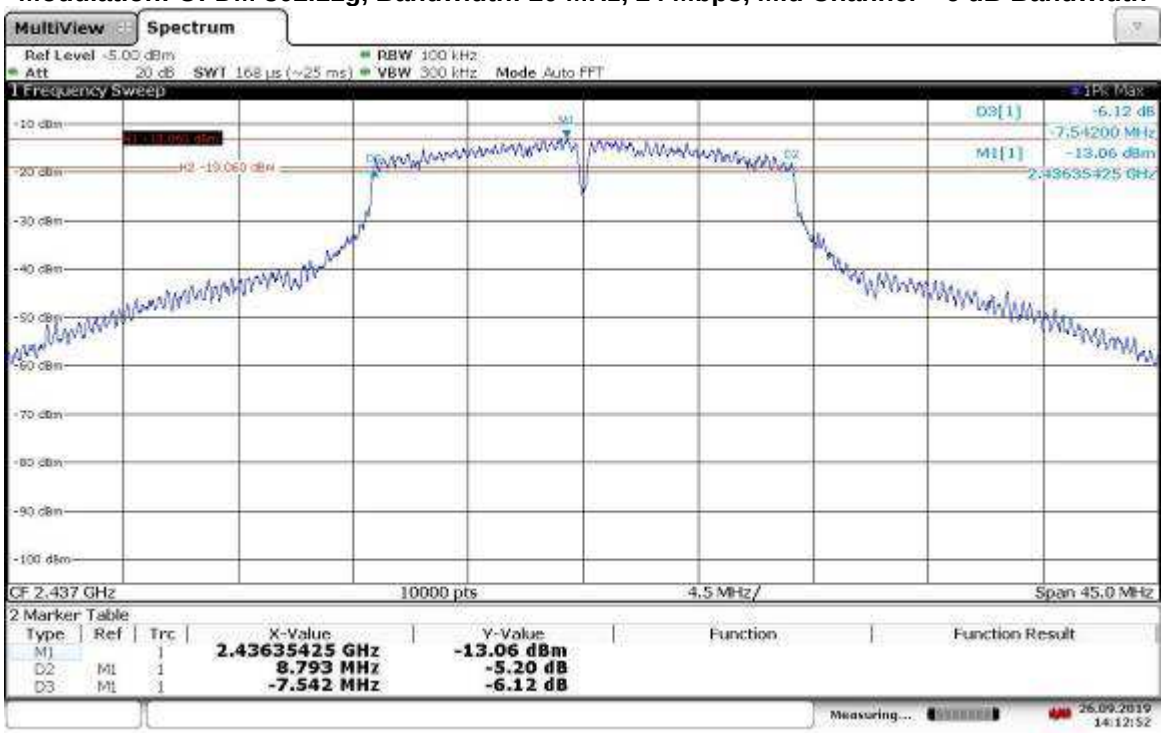
14:07:10 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 24 Mbps, Low Channel – 6 dB Bandwidth



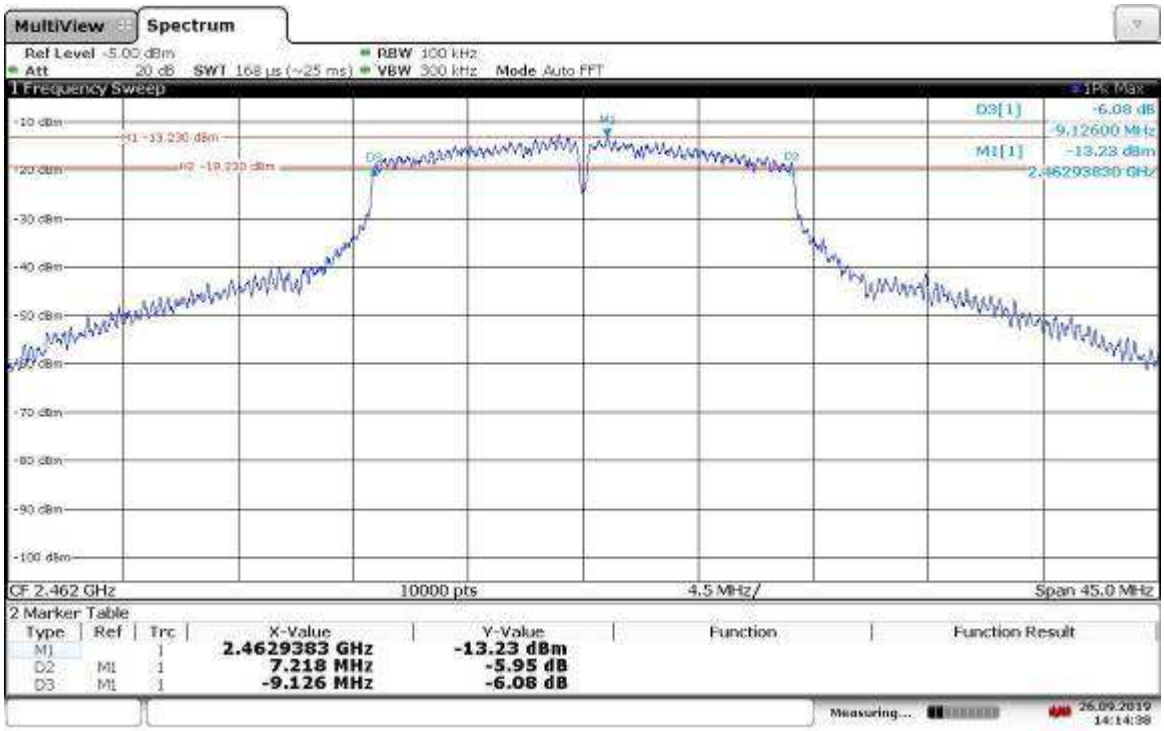
14:10:49 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 24 Mbps, Mid Channel – 6 dB Bandwidth



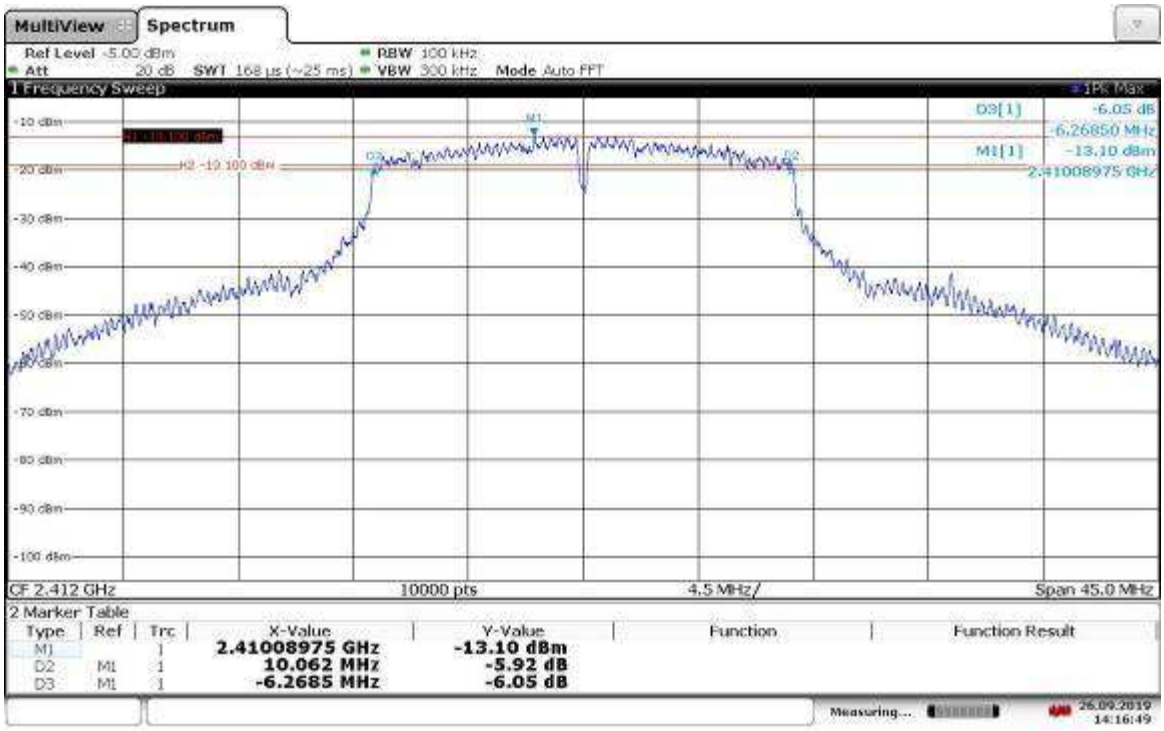
14:12:53 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 24 Mbps, High Channel – 6 dB Bandwidth



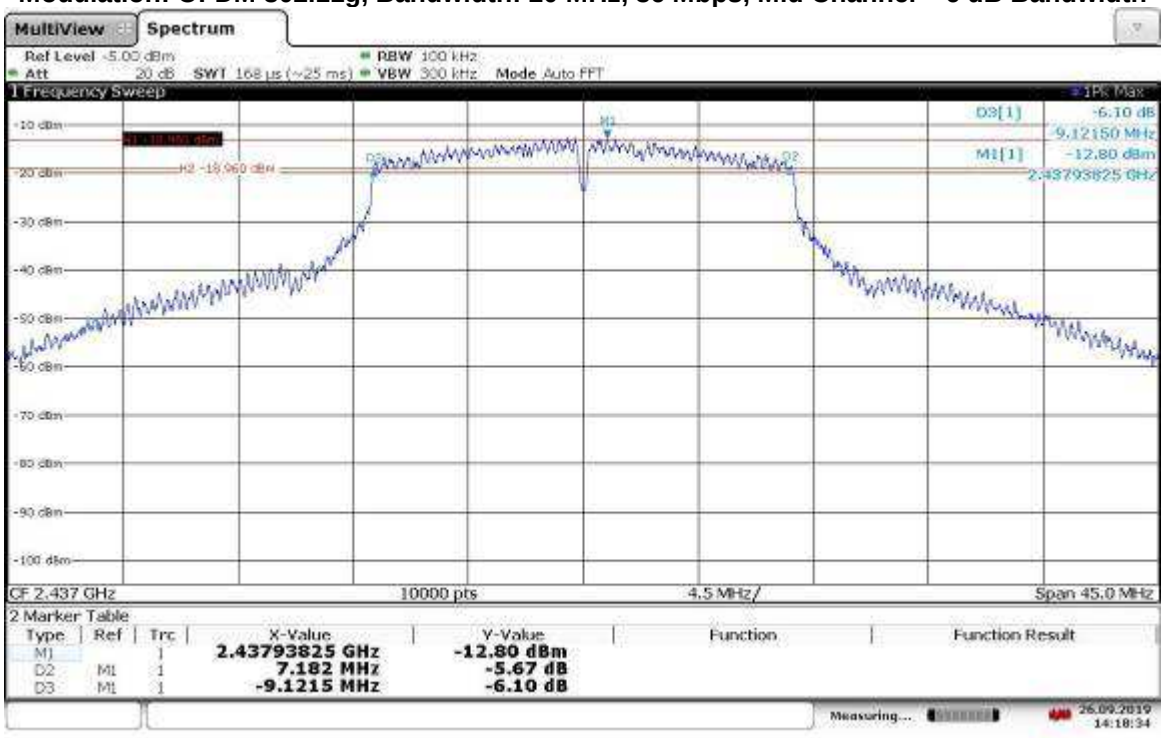
14:14:38 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 36 Mbps, Low Channel – 6 dB Bandwidth



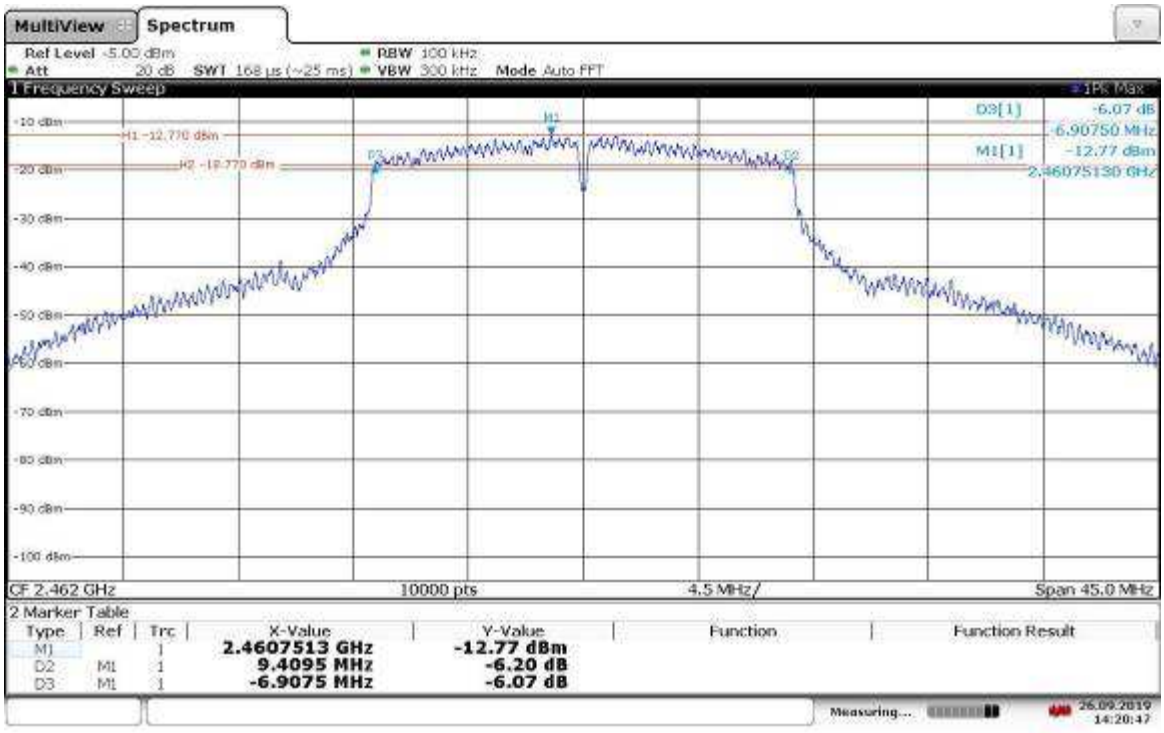
14:16:49 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 36 Mbps, Mid Channel – 6 dB Bandwidth



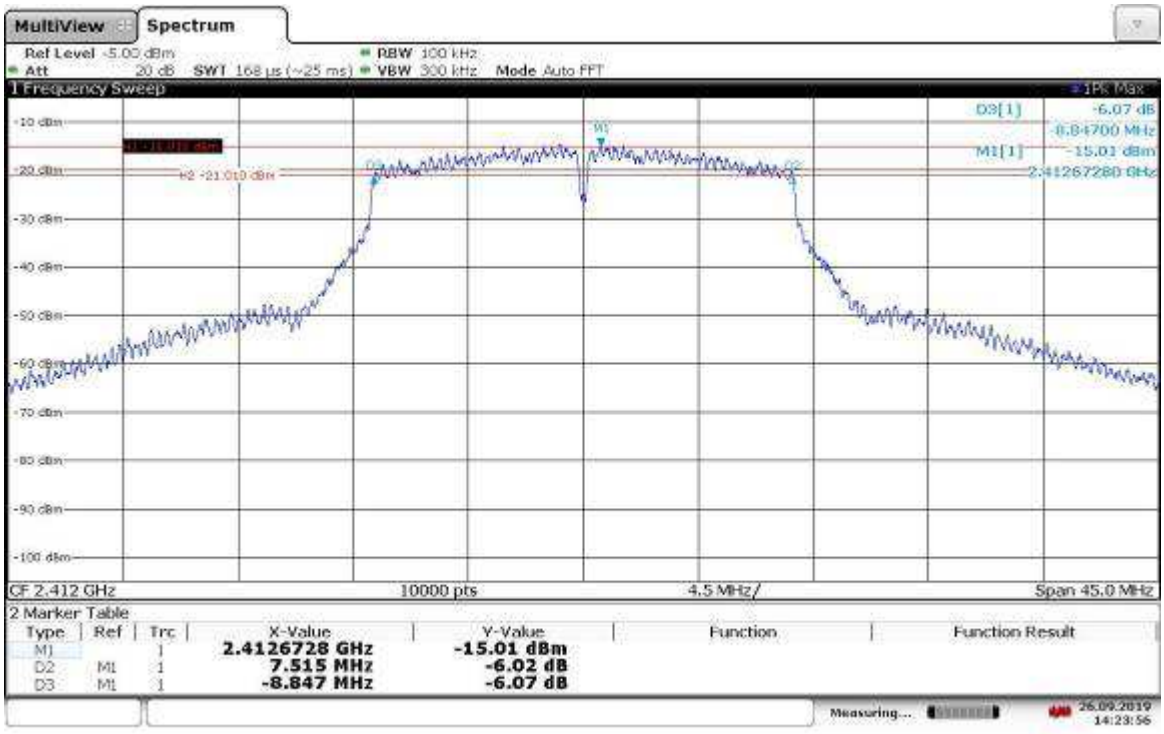
14:18:34 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 36 Mbps, High Channel– 6 dB Bandwidth



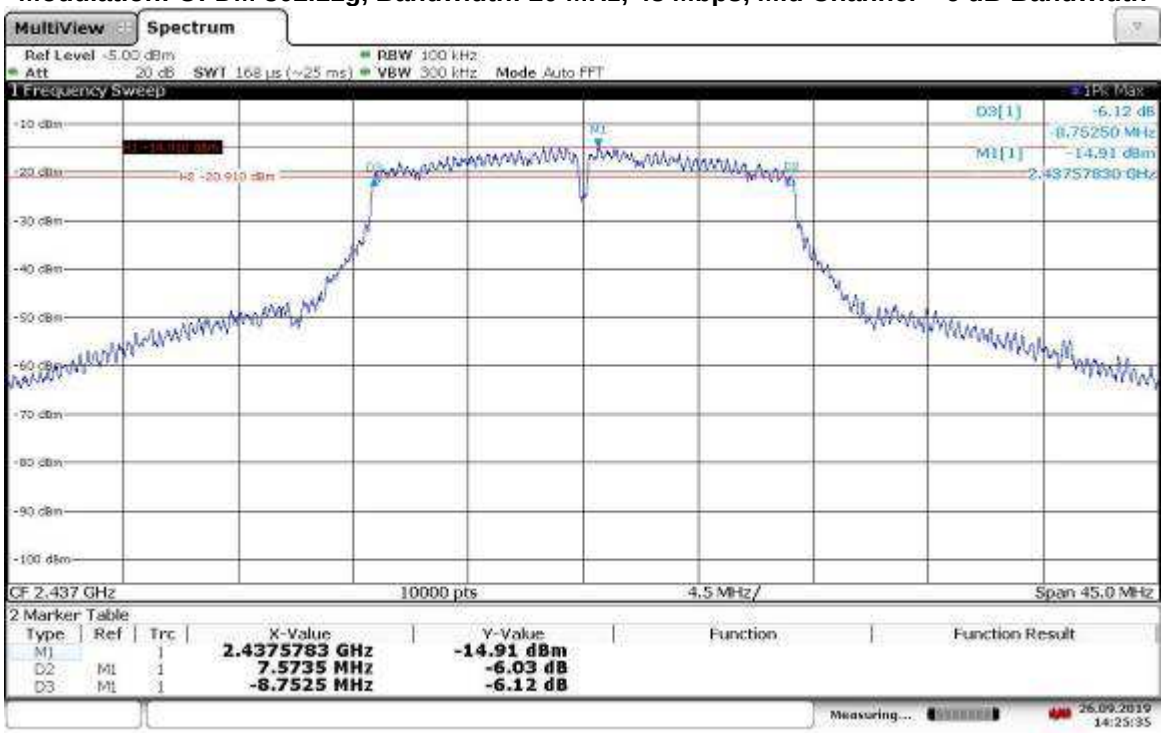
14:20:48 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 48 Mbps, Low Channel – 6 dB Bandwidth



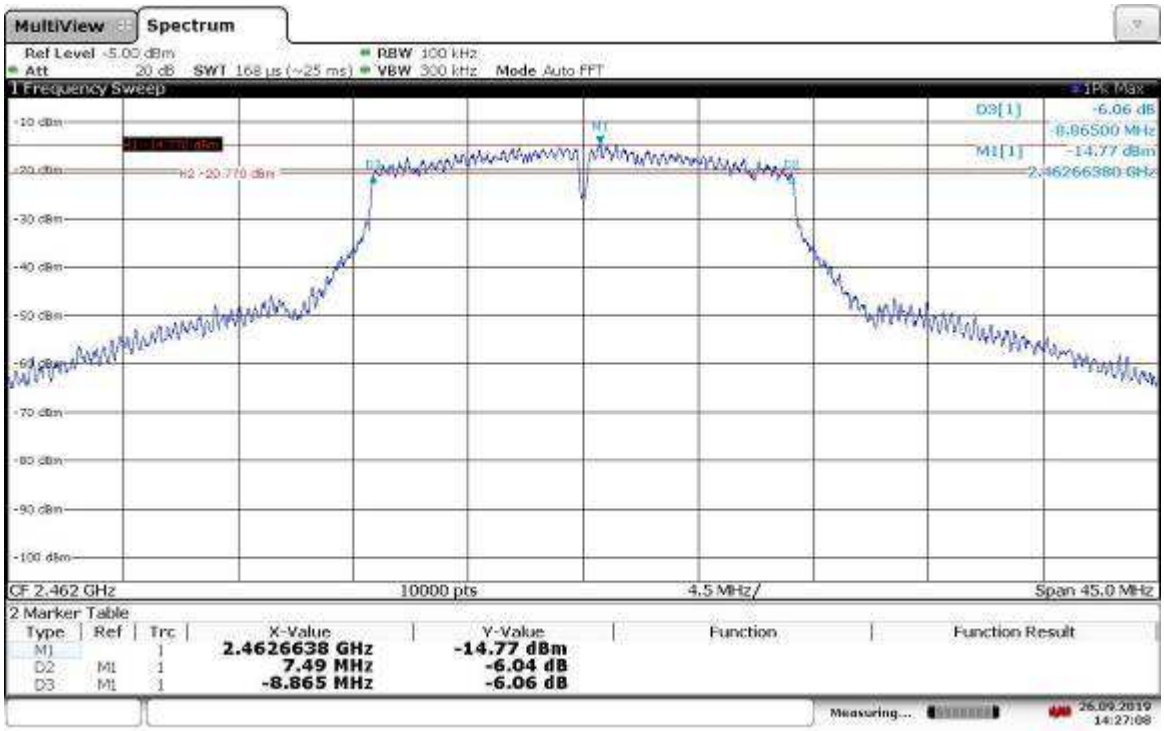
14:23:56 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 48 Mbps, Mid Channel – 6 dB Bandwidth



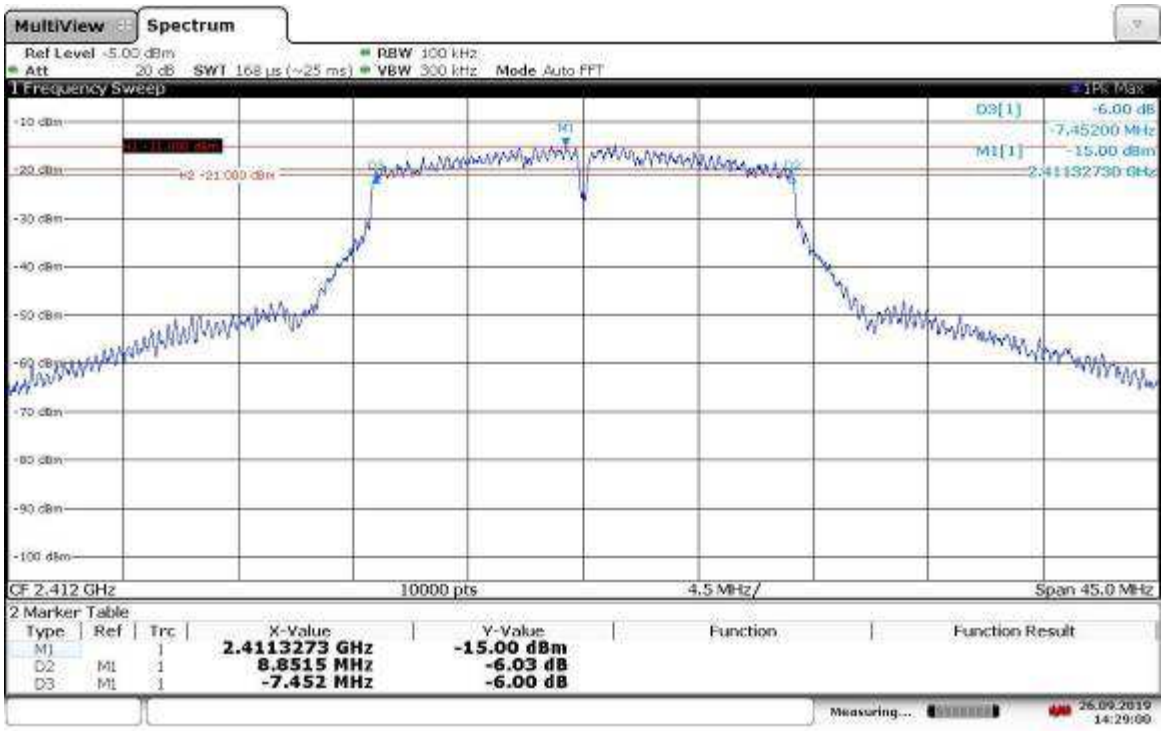
14:25:36 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 48 Mbps, High Channel – 6 dB Bandwidth



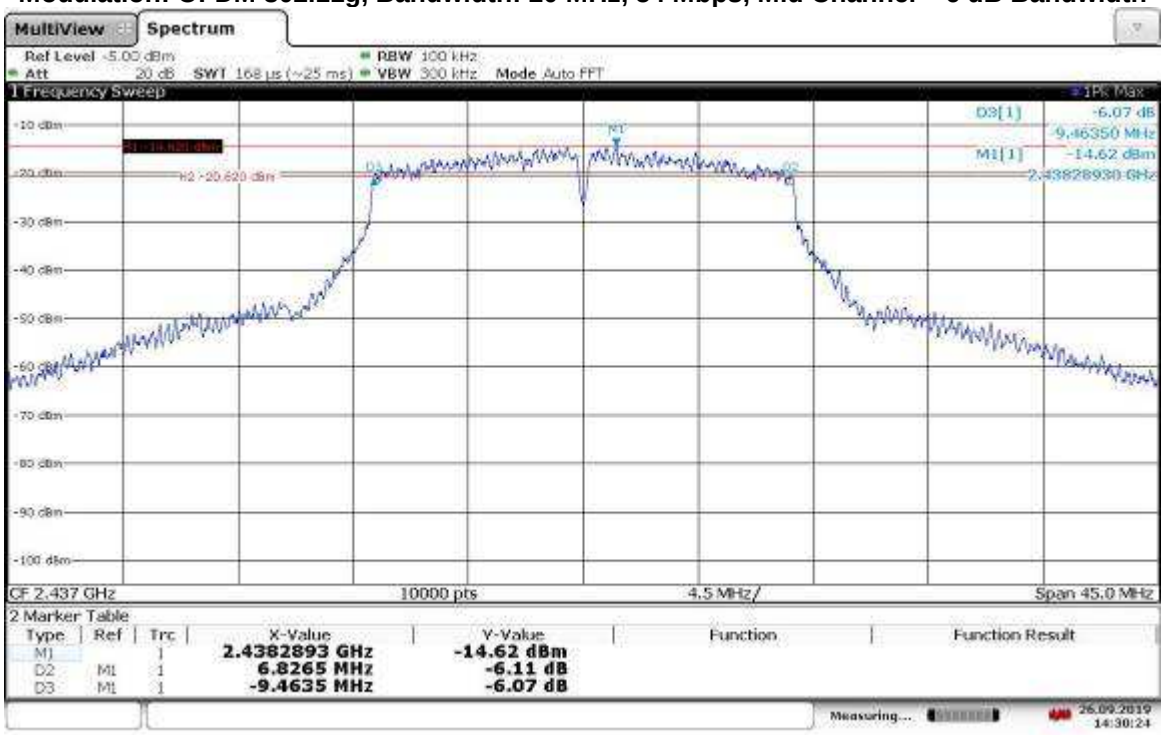
14:27:09 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 54 Mbps, Low Channel – 6 dB Bandwidth



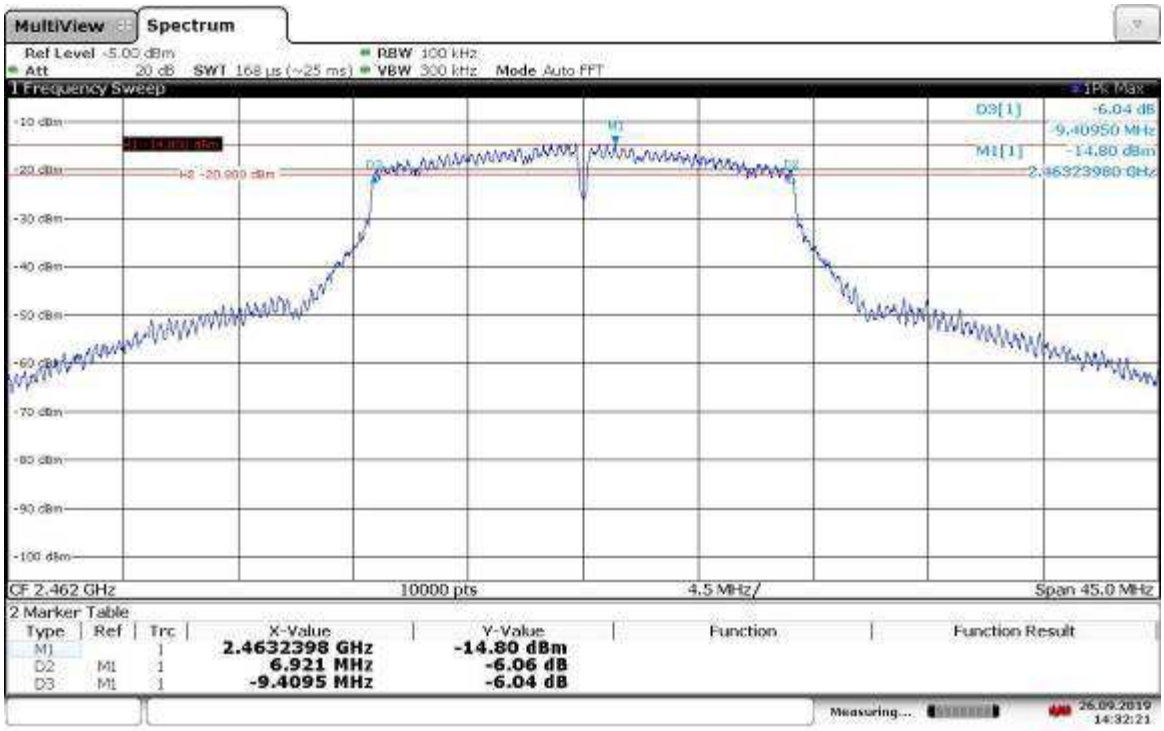
14:29:01 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 54 Mbps, Mid Channel – 6 dB Bandwidth



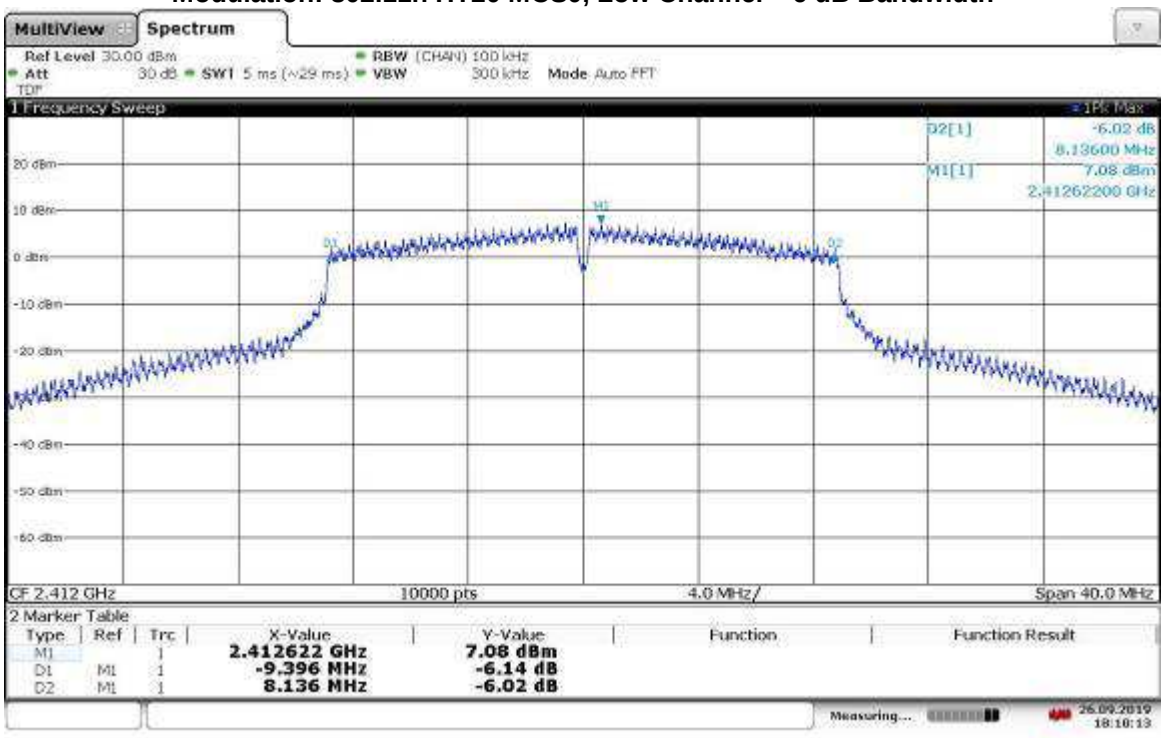
14:30:24 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 54 Mbps, High Channel – 6 dB Bandwidth



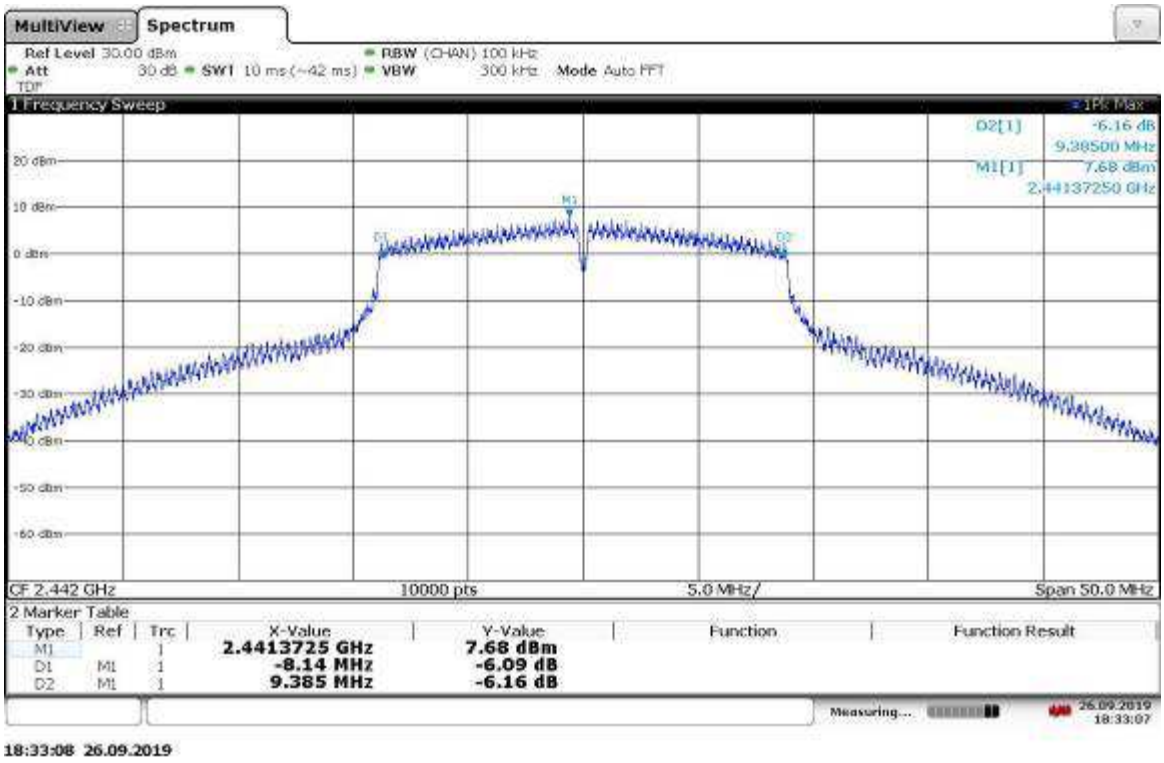
14:32:22 26.09.2019

Modulation: 802.11n HT20 MCS0, Low Channel – 6 dB Bandwidth



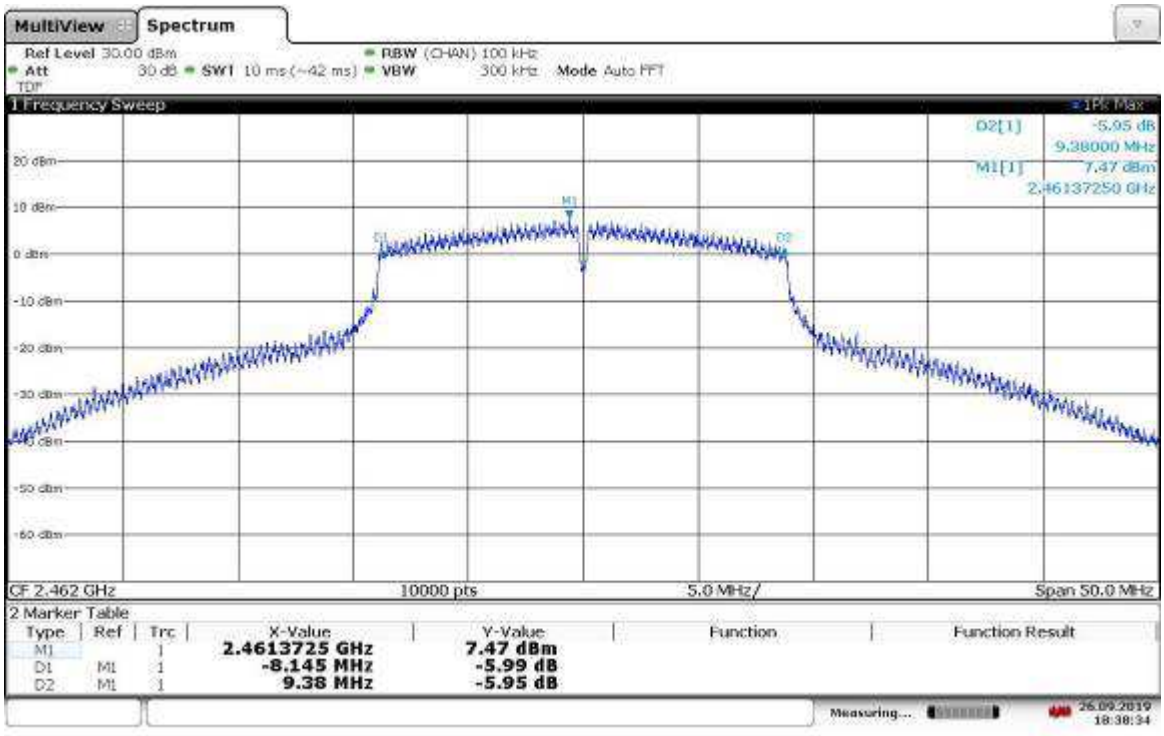
18:10:13 26.09.2019

Modulation: 802.11n HT20 MCS0, Mid Channel – 6 dB Bandwidth



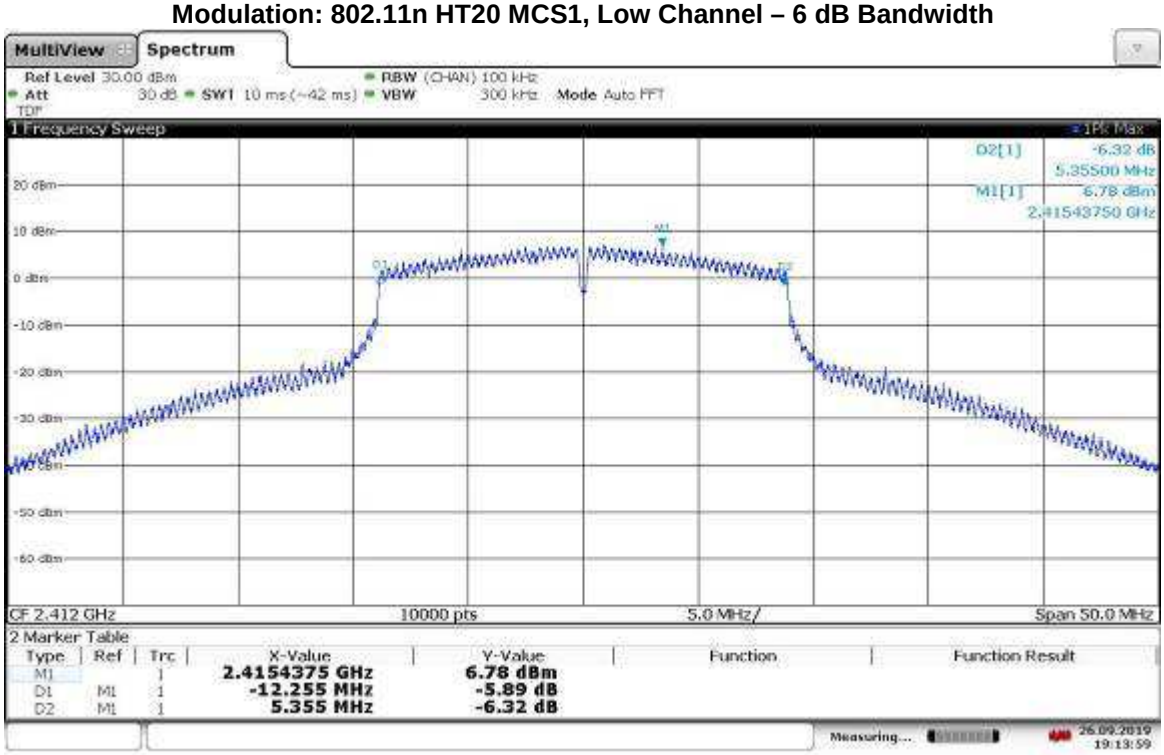
18:33:08 26.09.2019

Modulation: 802.11n HT20 MCS0, High Channel – 6 dB Bandwidth



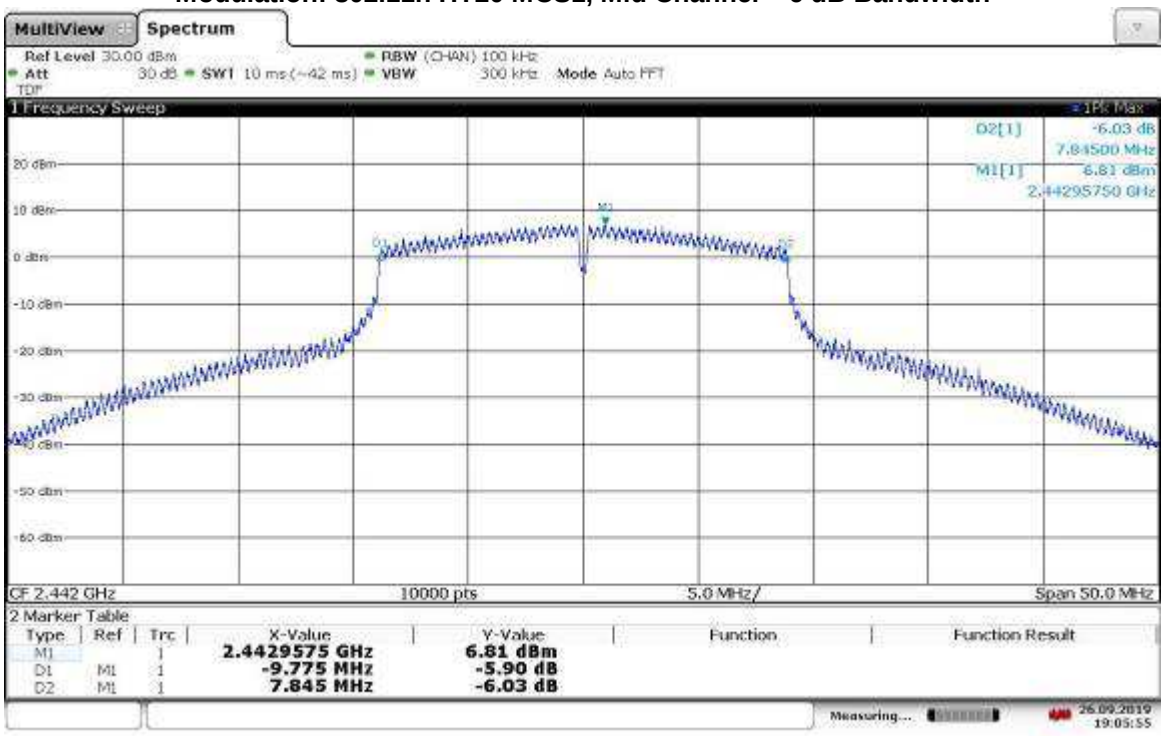
18:38:34 26.09.2019

Modulation: 802.11n HT20 MCS1, Low Channel – 6 dB Bandwidth



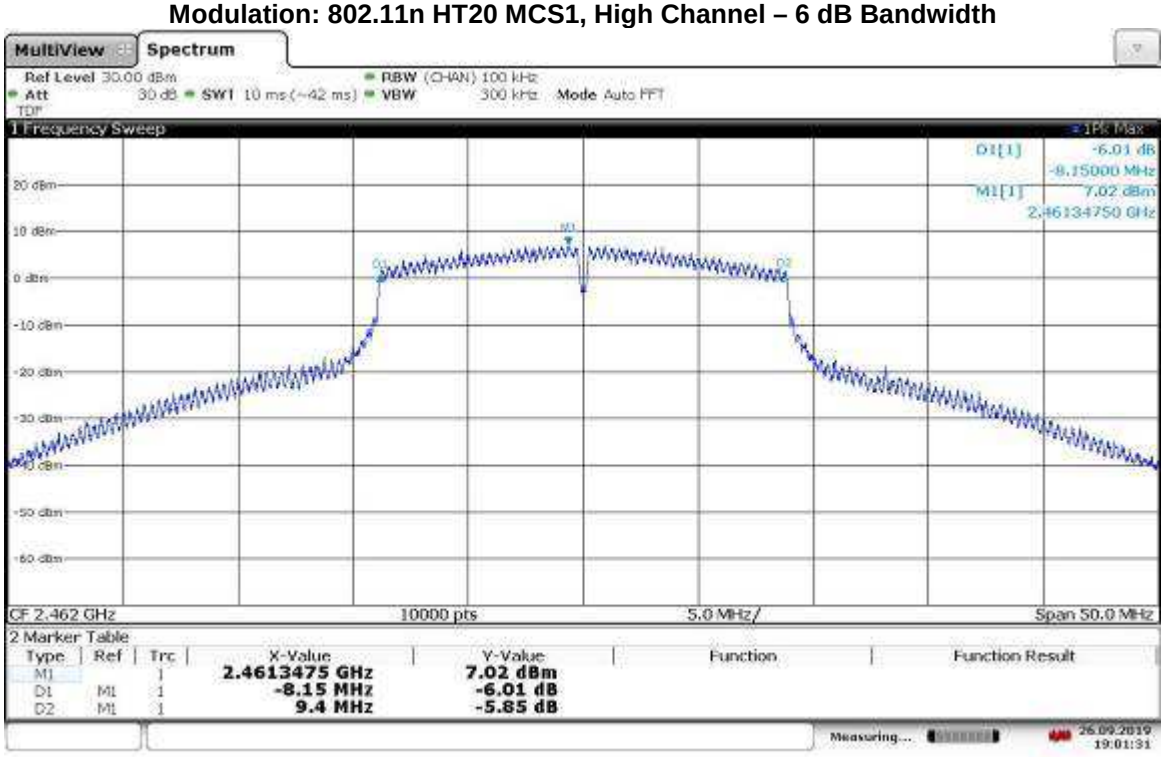
19:14:00 26.09.2019

Modulation: 802.11n HT20 MCS1, Mid Channel – 6 dB Bandwidth



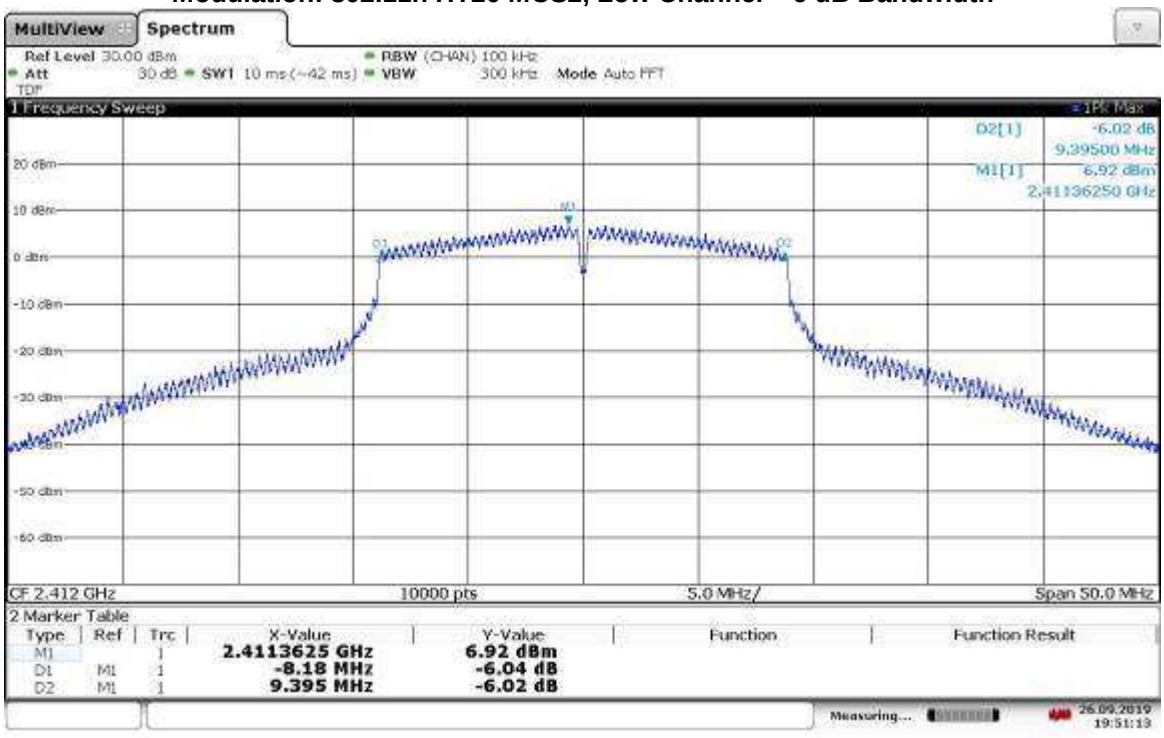
19:05:55 26.09.2019

Modulation: 802.11n HT20 MCS1, High Channel – 6 dB Bandwidth



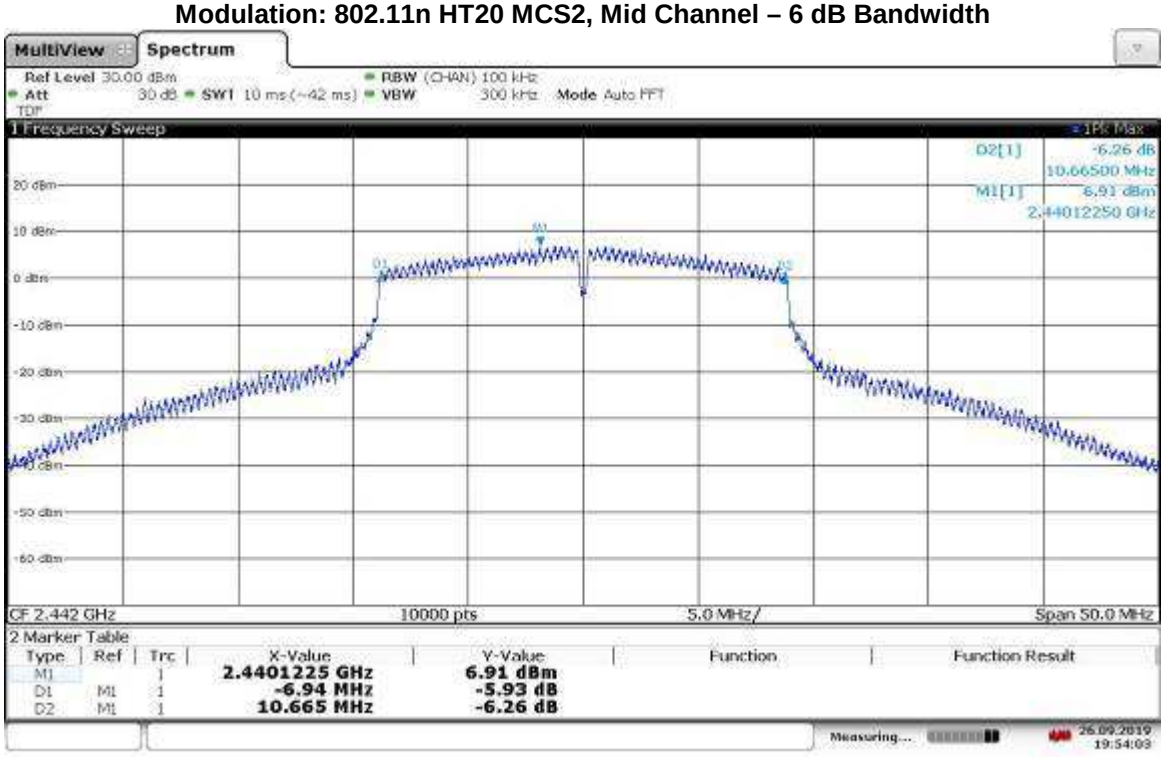
19:01:32 26.09.2019

Modulation: 802.11n HT20 MCS2, Low Channel – 6 dB Bandwidth



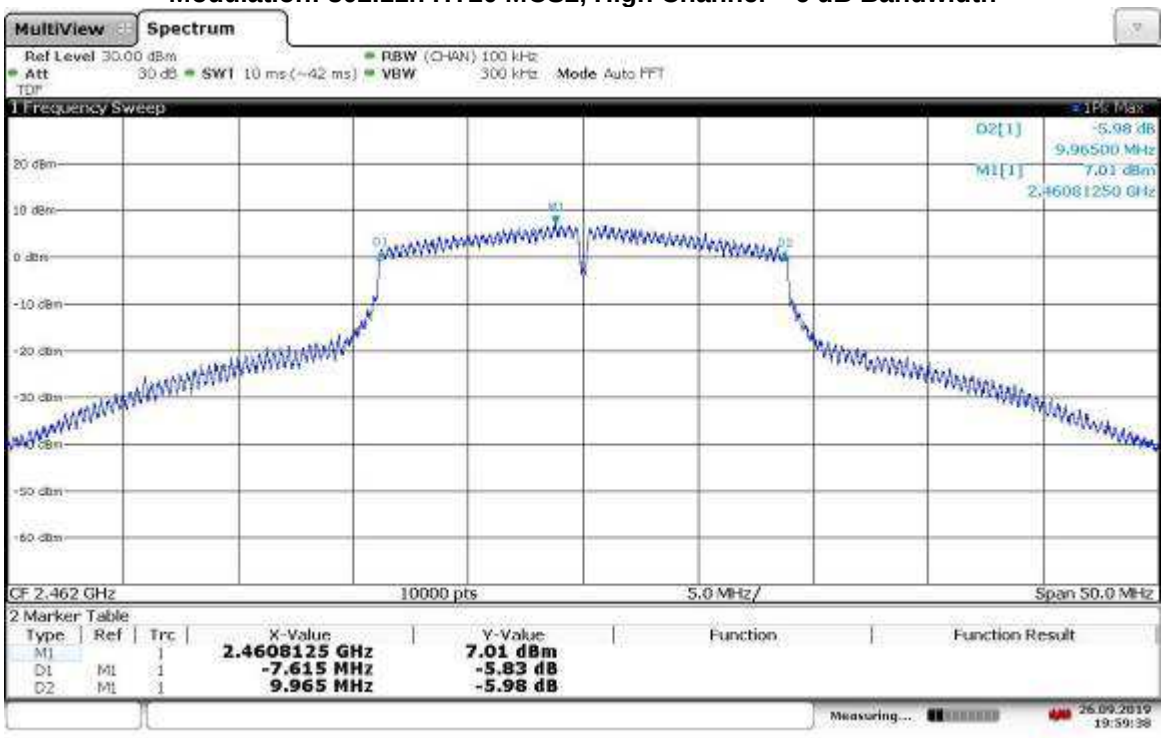
19:51:14 26.09.2019

Modulation: 802.11n HT20 MCS2, Mid Channel – 6 dB Bandwidth



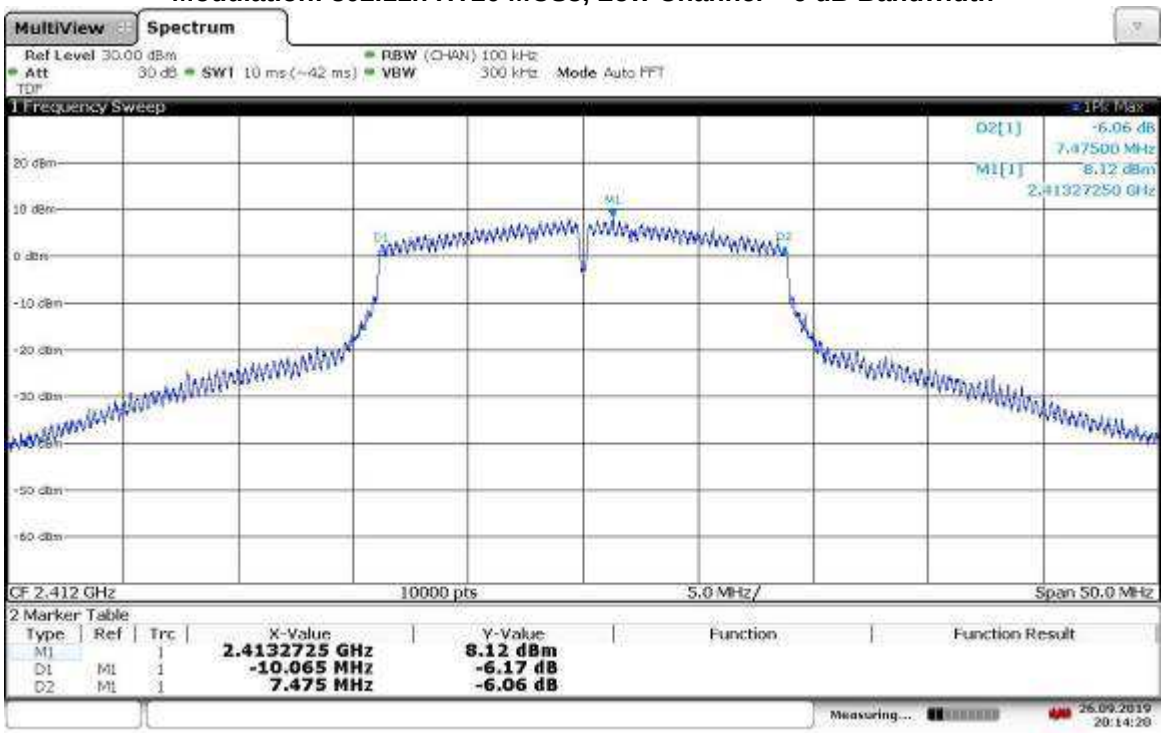
19:54:03 26.09.2019

Modulation: 802.11n HT20 MCS2, High Channel – 6 dB Bandwidth



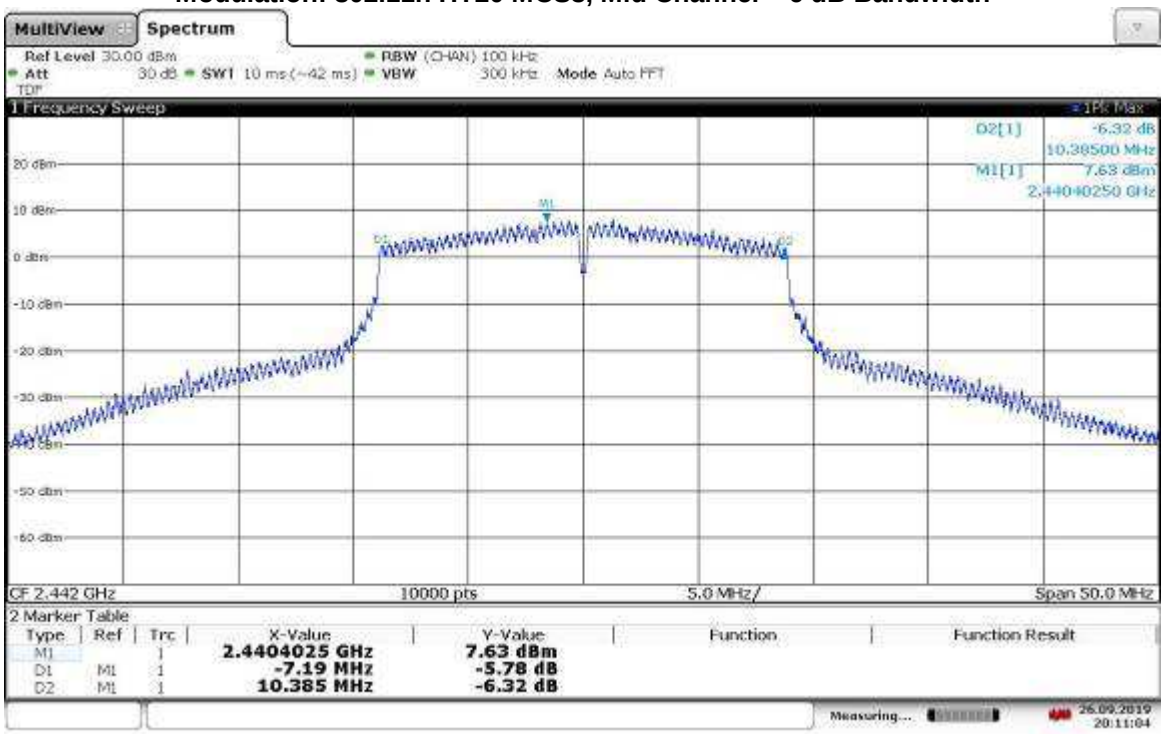
19:59:38 26.09.2019

Modulation: 802.11n HT20 MCS3, Low Channel – 6 dB Bandwidth



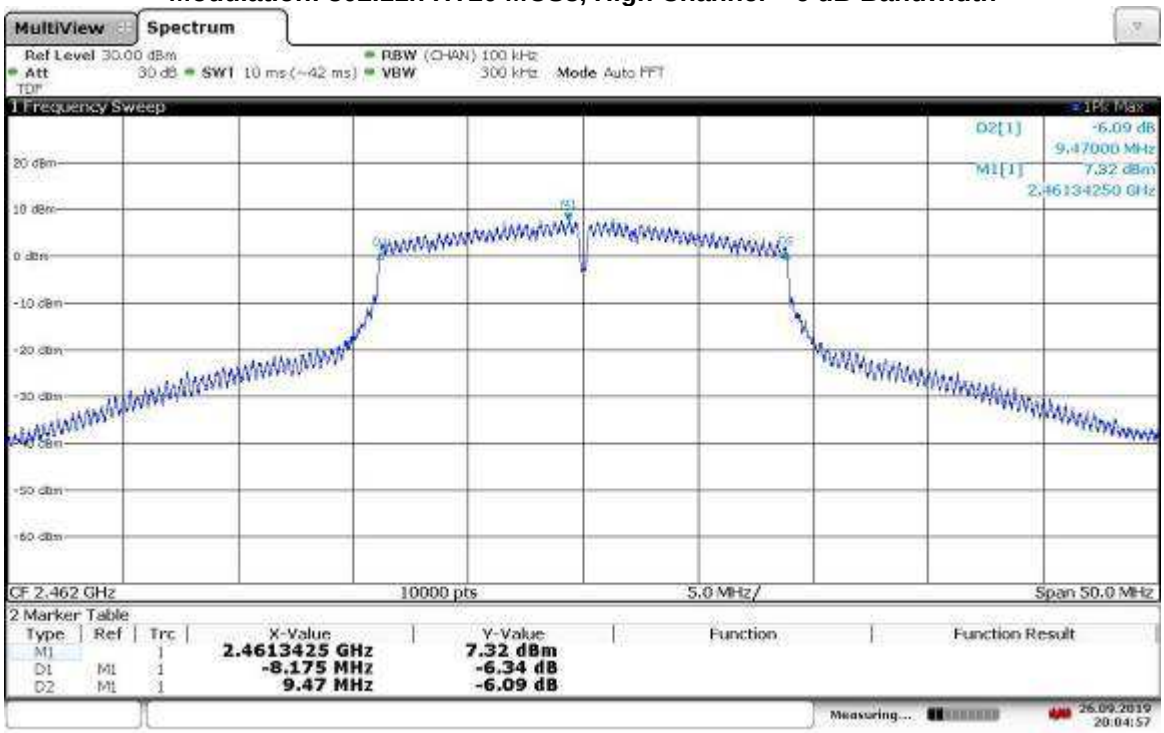
20:14:20 26.09.2019

Modulation: 802.11n HT20 MCS3, Mid Channel – 6 dB Bandwidth



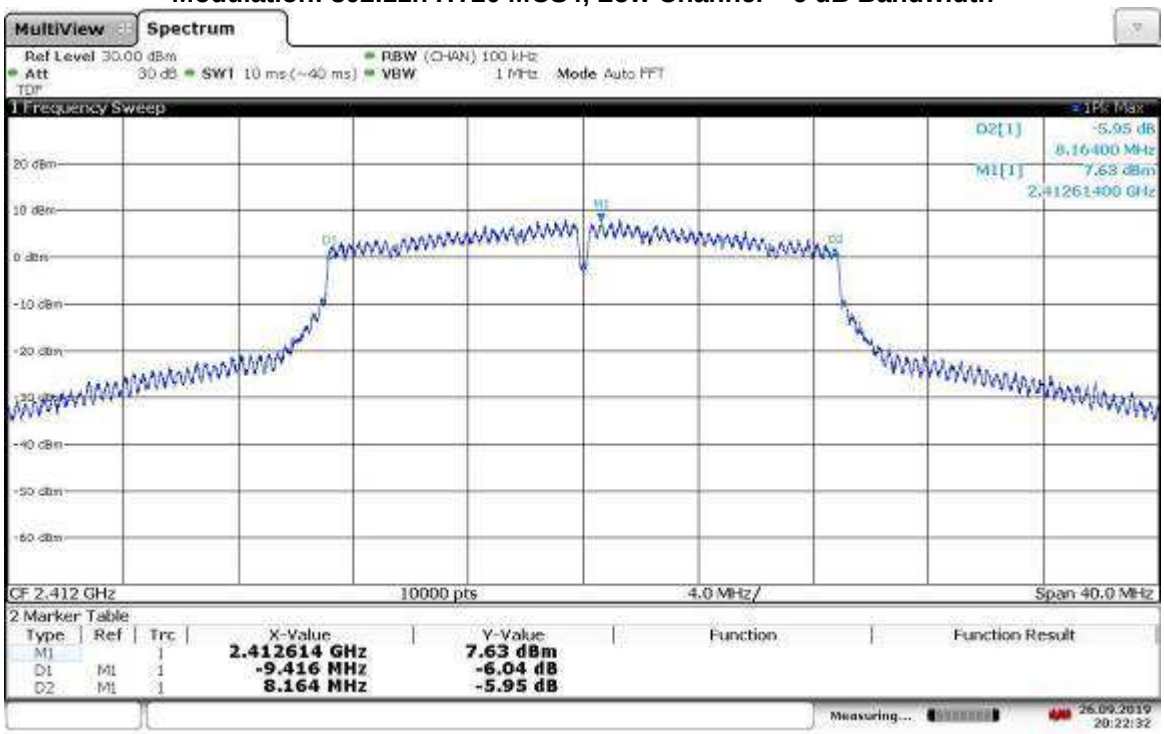
20:11:04 26.09.2019

Modulation: 802.11n HT20 MCS3, High Channel – 6 dB Bandwidth



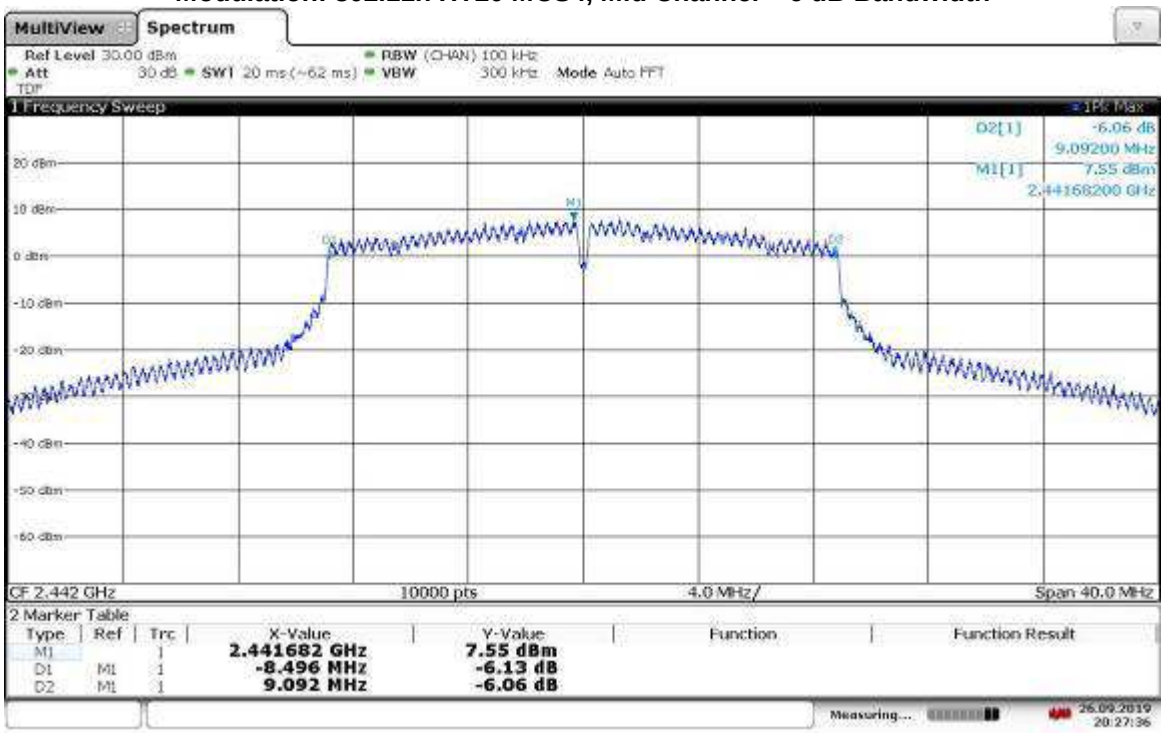
20:04:57 26.09.2019

Modulation: 802.11n HT20 MCS4, Low Channel – 6 dB Bandwidth



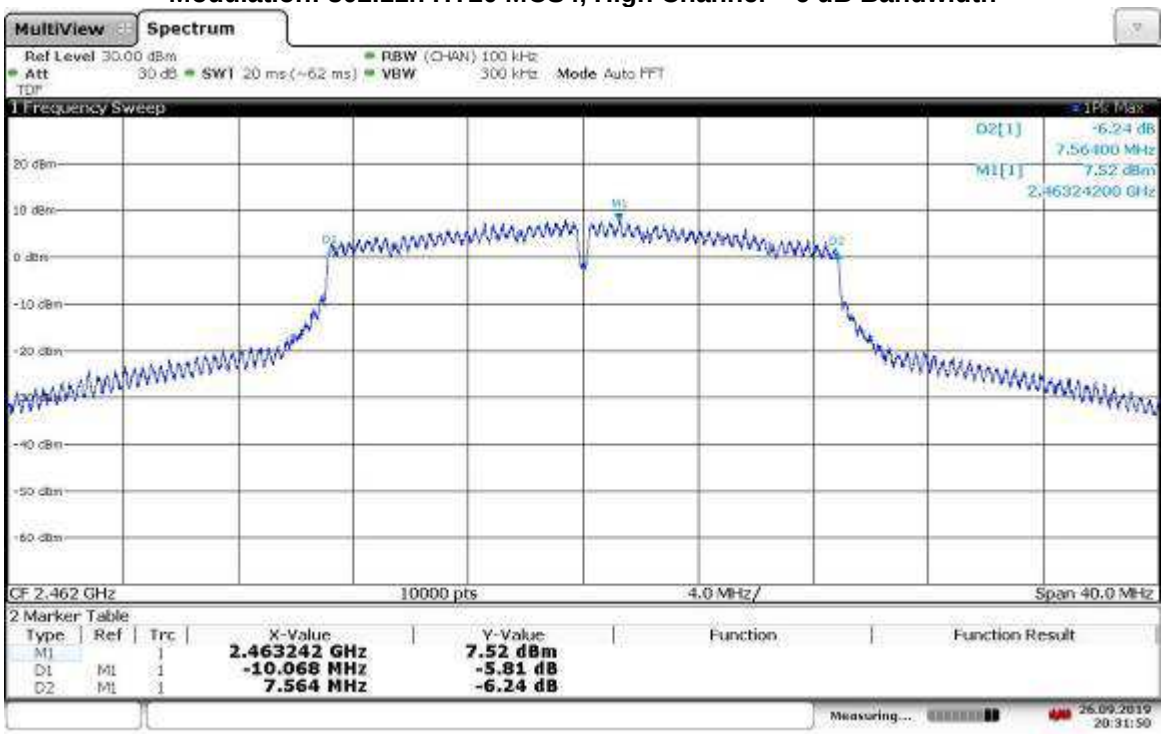
20:22:32 26.09.2019

Modulation: 802.11n HT20 MCS4, Mid Channel – 6 dB Bandwidth



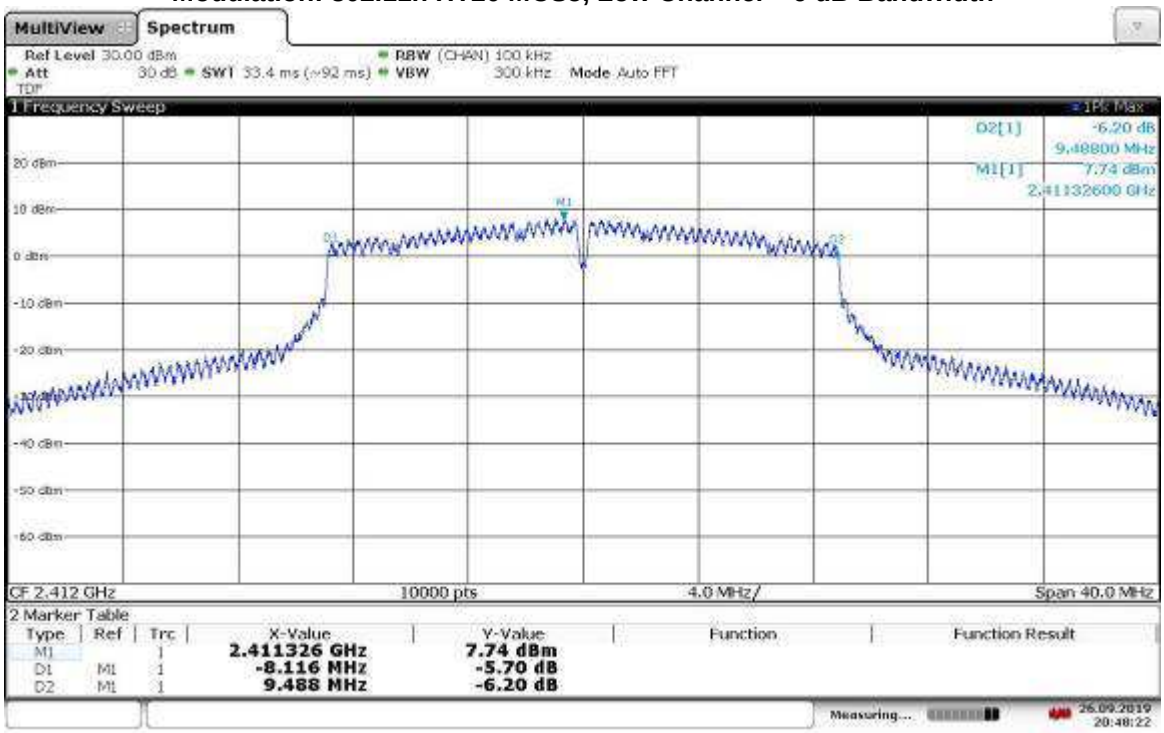
20:27:36 26.09.2019

Modulation: 802.11n HT20 MCS4, High Channel – 6 dB Bandwidth



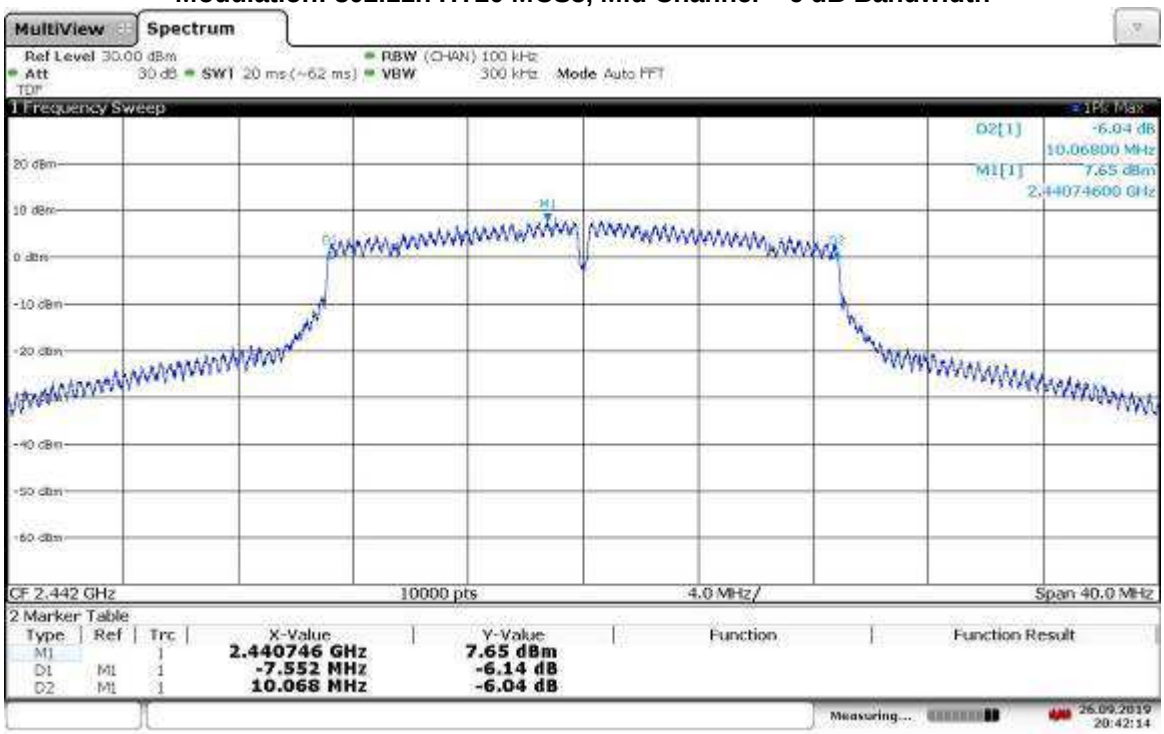
20:31:50 26.09.2019

Modulation: 802.11n HT20 MCS5, Low Channel – 6 dB Bandwidth



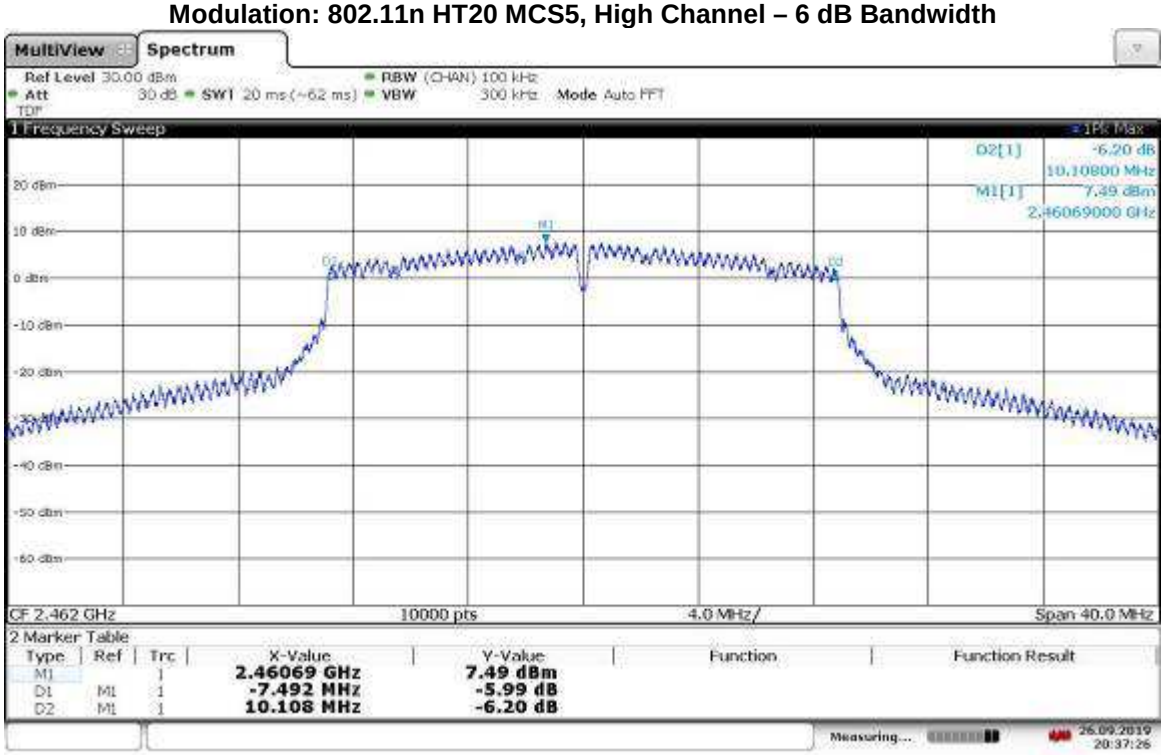
20:48:23 26.09.2019

Modulation: 802.11n HT20 MCS5, Mid Channel – 6 dB Bandwidth



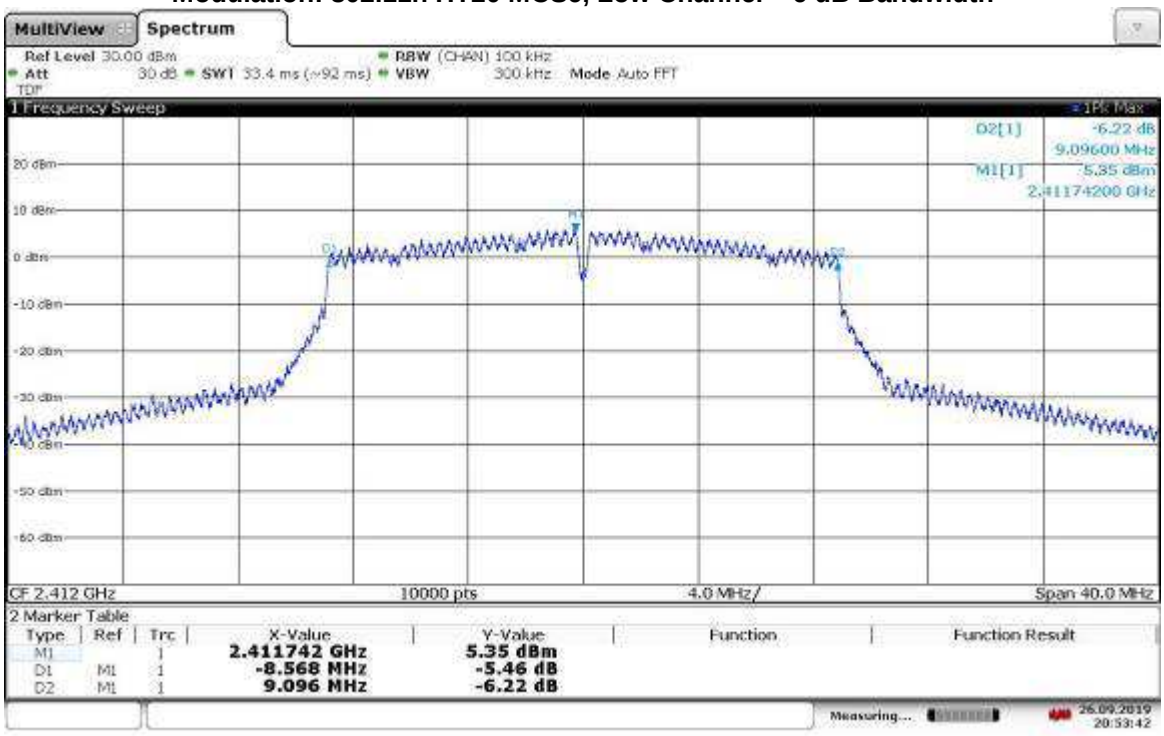
20:42:14 26.09.2019

Modulation: 802.11n HT20 MCS5, High Channel – 6 dB Bandwidth



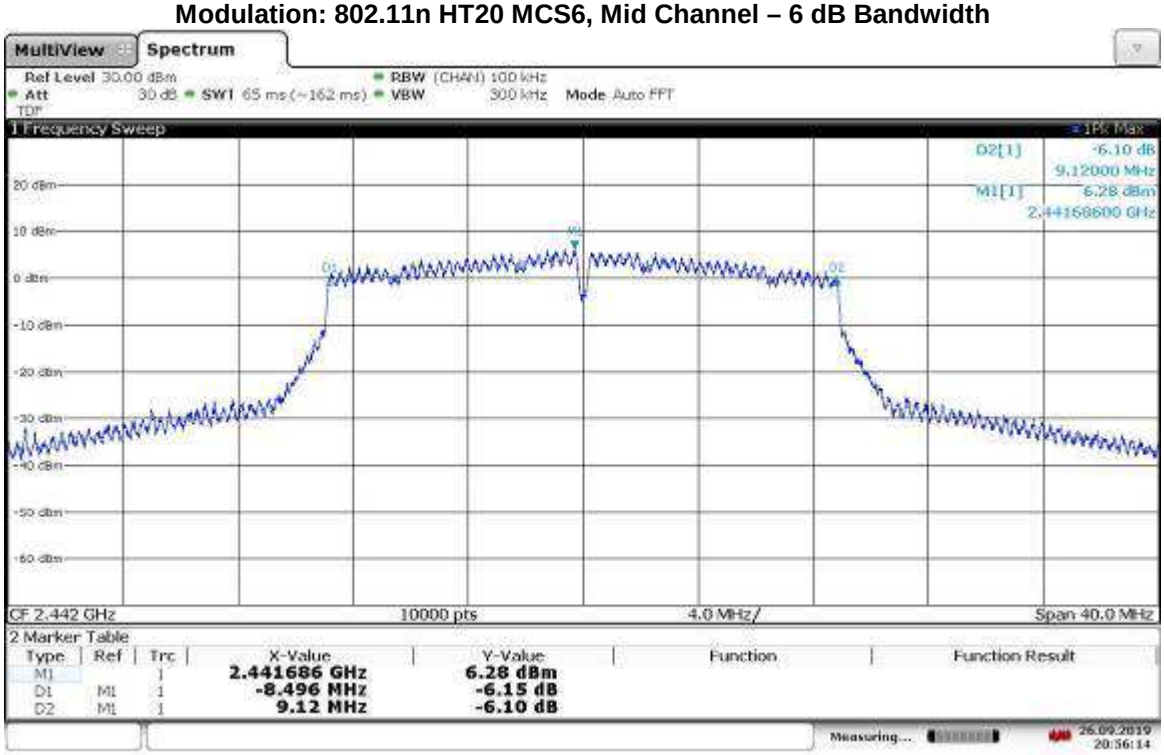
20:37:26 26.09.2019

Modulation: 802.11n HT20 MCS6, Low Channel – 6 dB Bandwidth



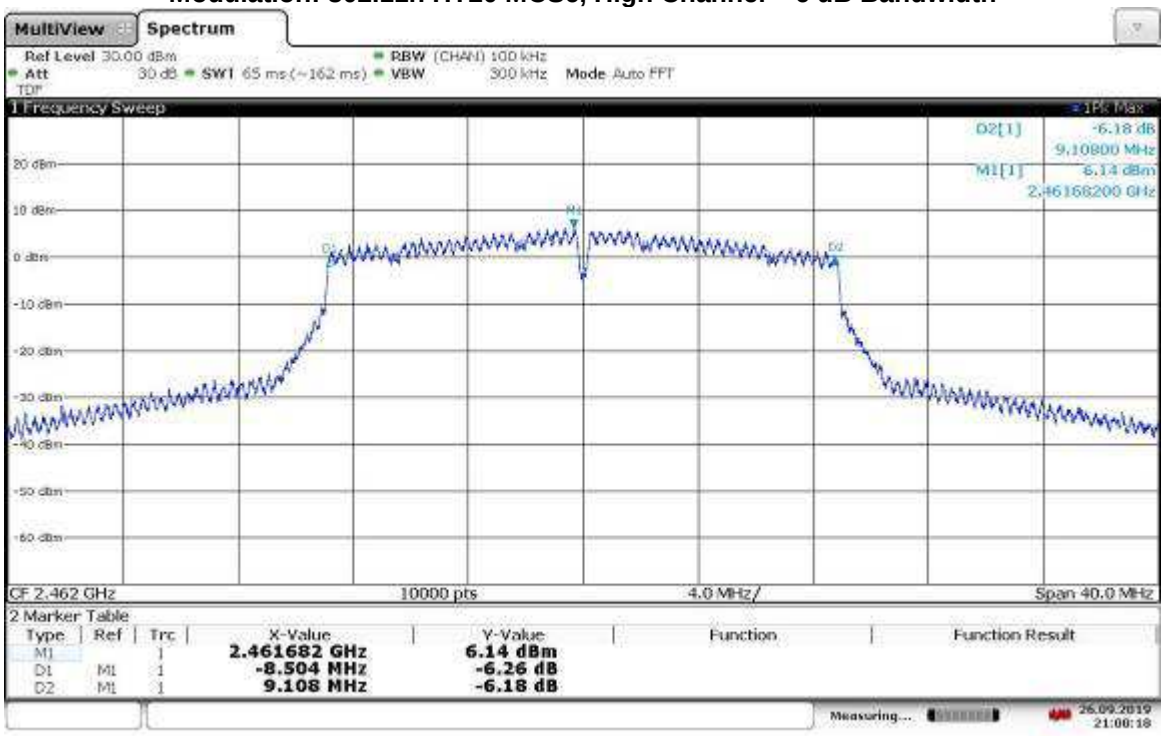
20:53:42 26.09.2019

Modulation: 802.11n HT20 MCS6, Mid Channel – 6 dB Bandwidth



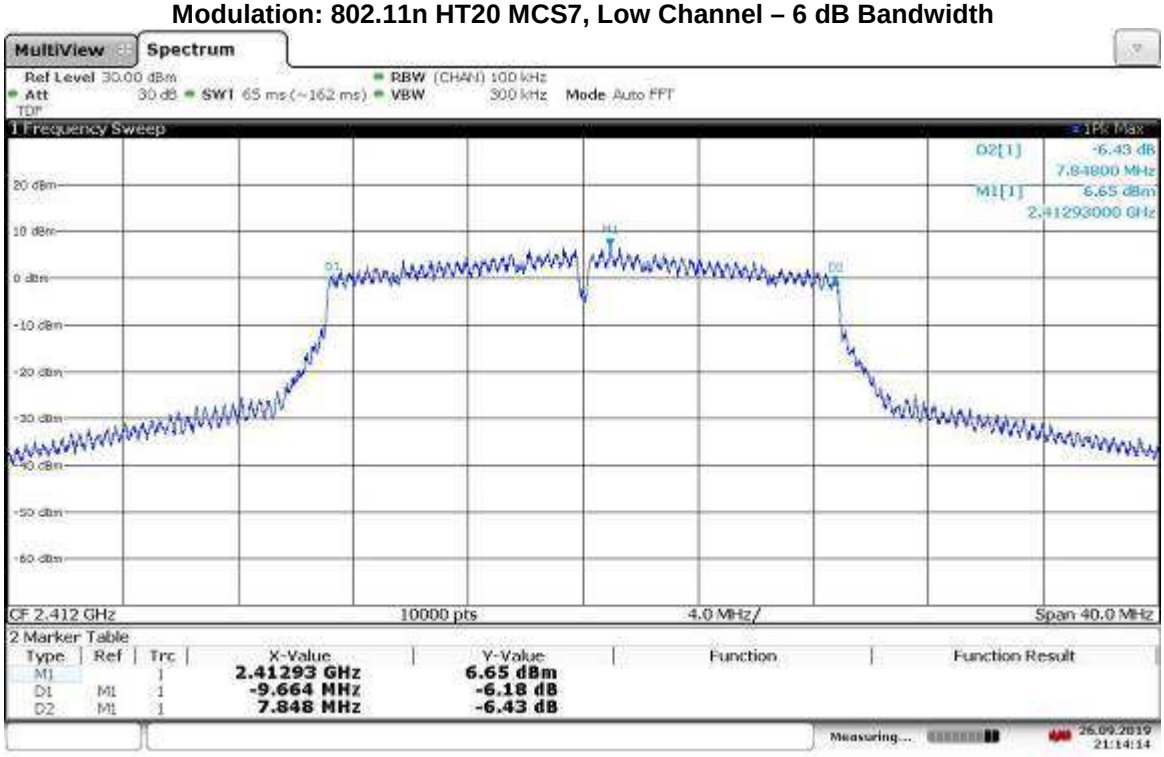
20:56:14 26.09.2019

Modulation: 802.11n HT20 MCS6, High Channel – 6 dB Bandwidth



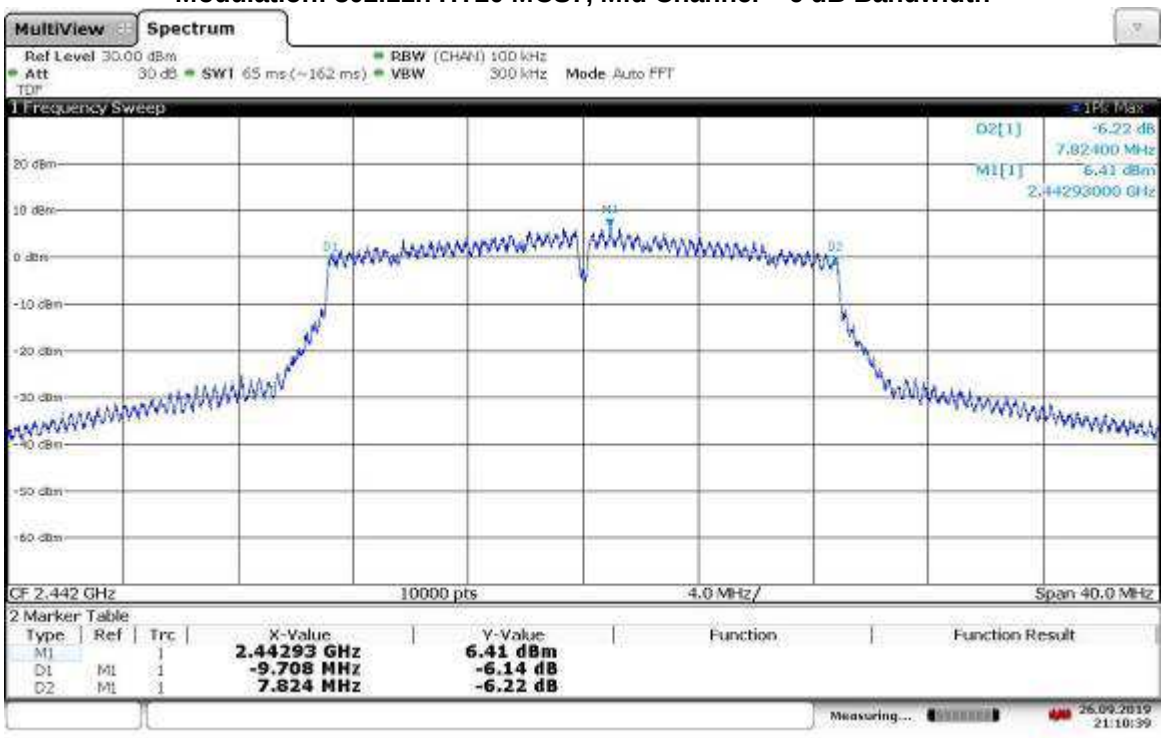
21:00:18 26.09.2019

Modulation: 802.11n HT20 MCS7, Low Channel – 6 dB Bandwidth



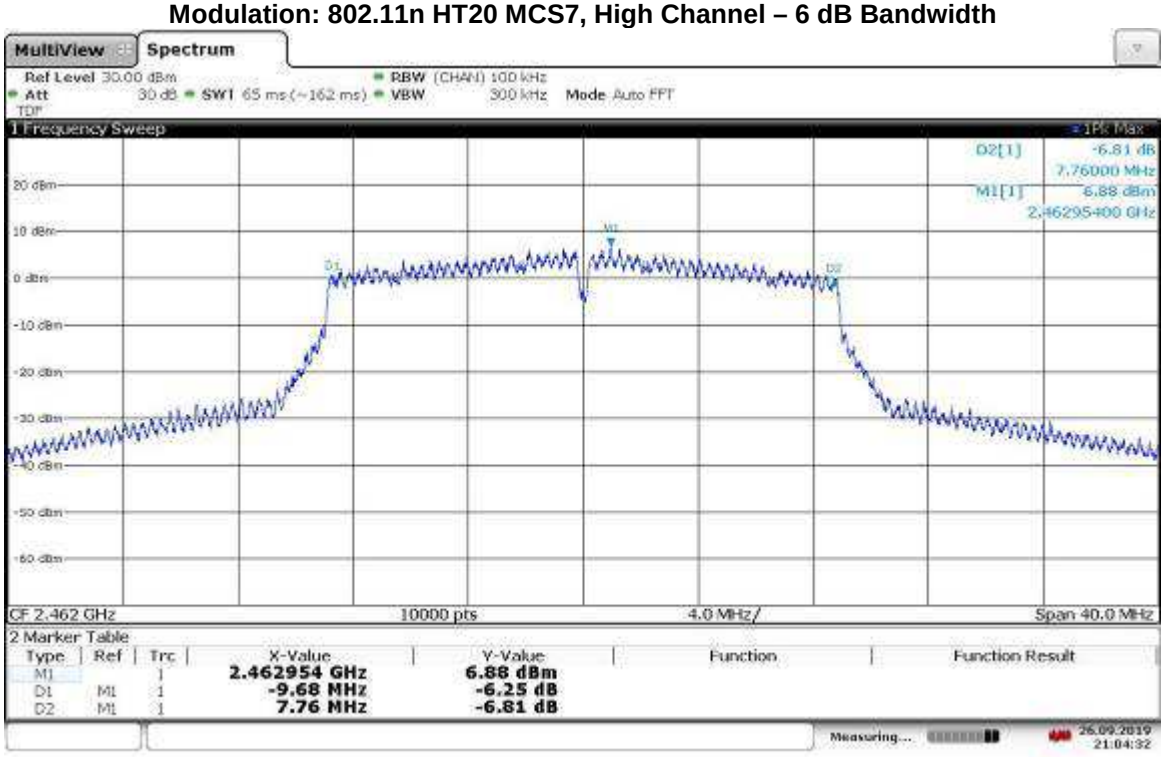
21:14:15 26.09.2019

Modulation: 802.11n HT20 MCS7, Mid Channel – 6 dB Bandwidth



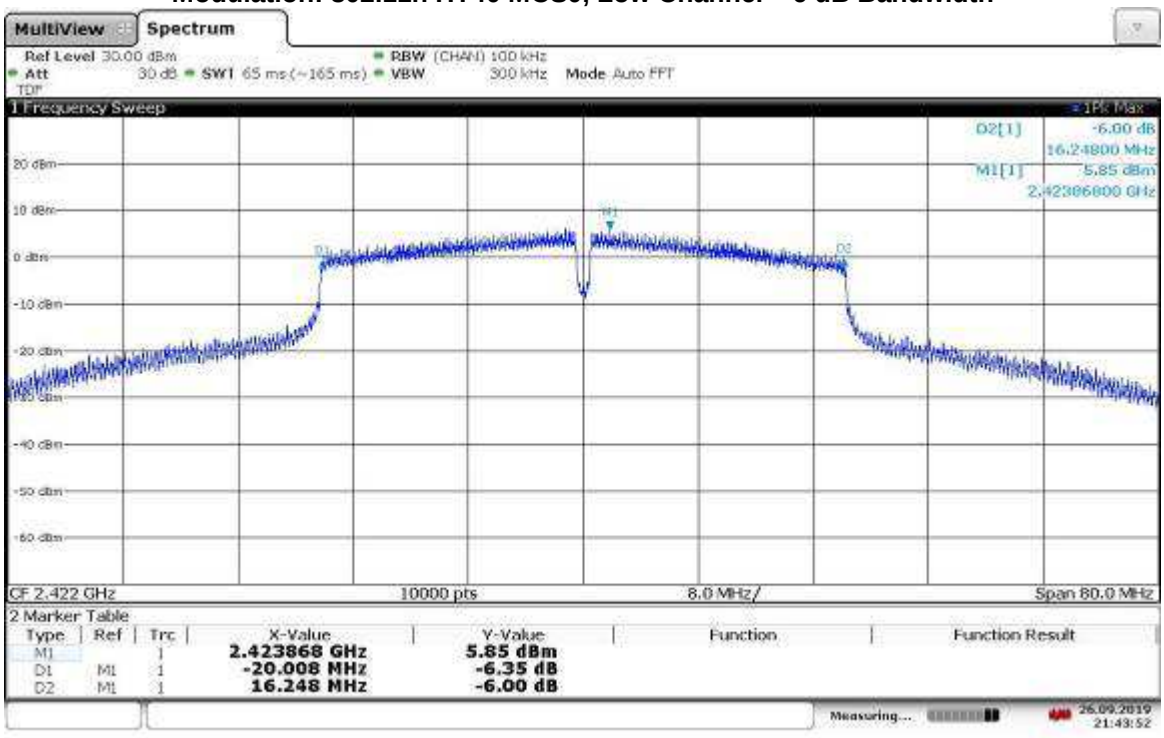
21:10:40 26.09.2019

Modulation: 802.11n HT20 MCS7, High Channel – 6 dB Bandwidth



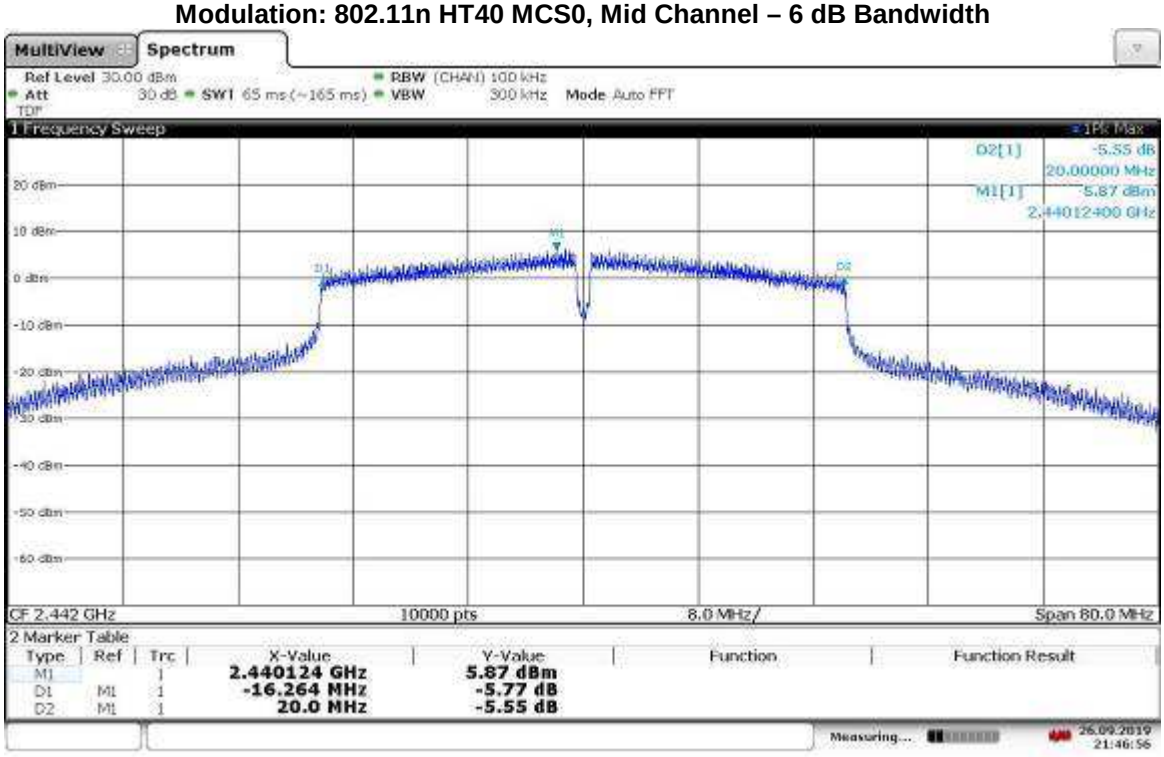
21:04:32 26.09.2019

Modulation: 802.11n HT40 MCS0, Low Channel – 6 dB Bandwidth



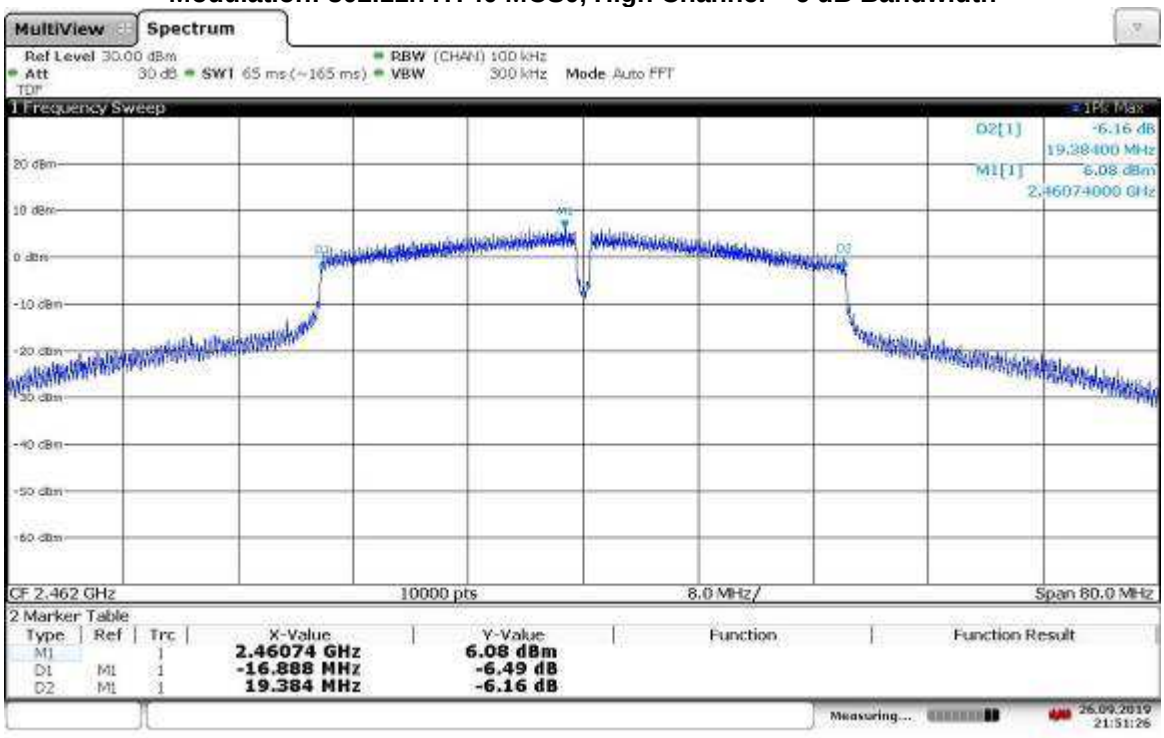
21:43:52 26.09.2019

Modulation: 802.11n HT40 MCS0, Mid Channel – 6 dB Bandwidth



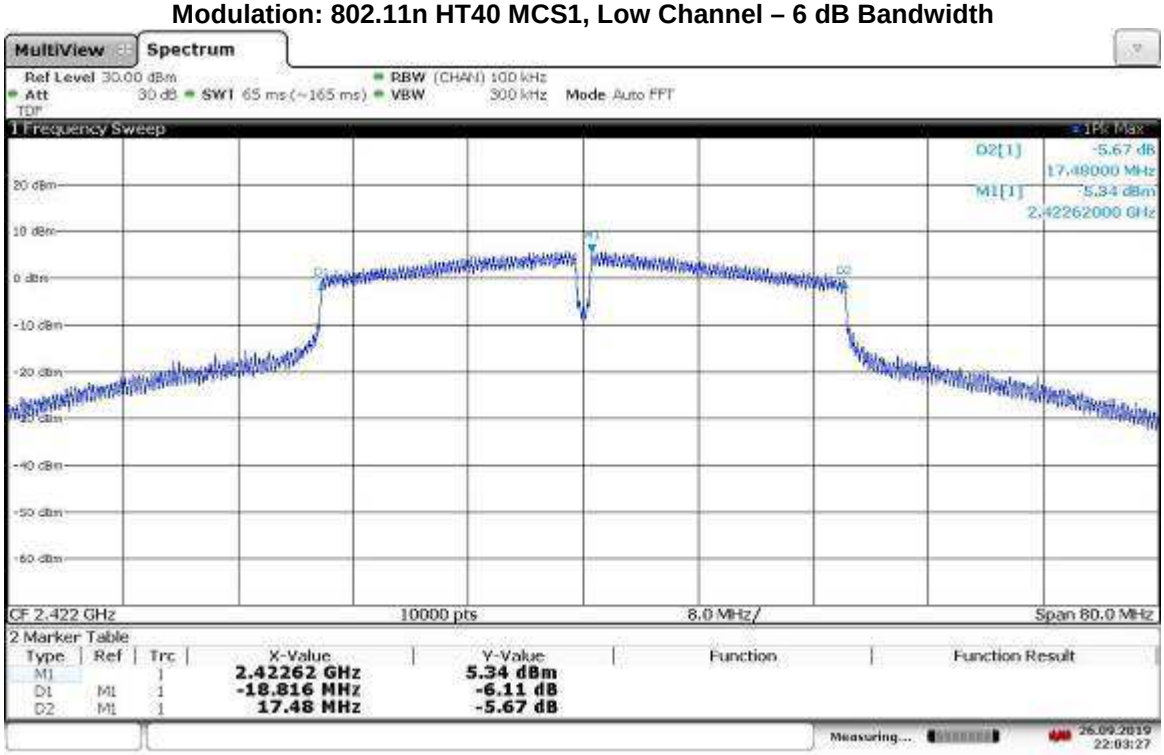
21:46:57 26.09.2019

Modulation: 802.11n HT40 MCS0, High Channel – 6 dB Bandwidth



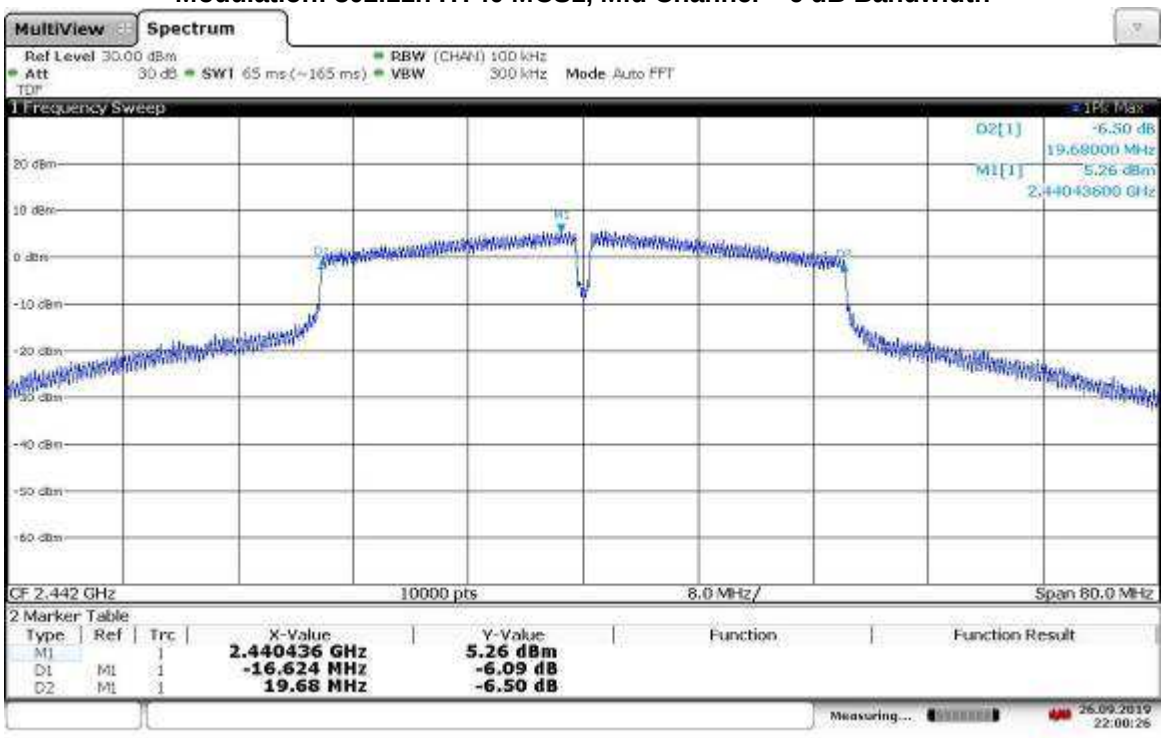
21:51:27 26.09.2019

Modulation: 802.11n HT40 MCS1, Low Channel – 6 dB Bandwidth



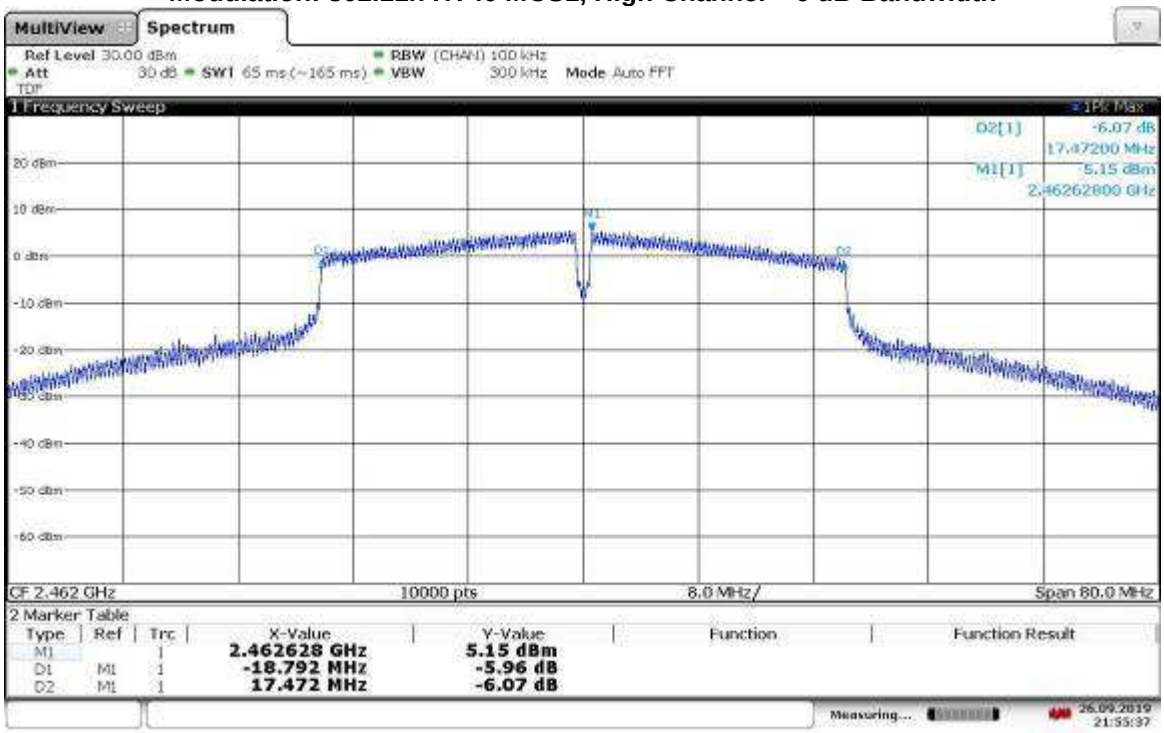
22:03:28 26.09.2019

Modulation: 802.11n HT40 MCS1, Mid Channel – 6 dB Bandwidth



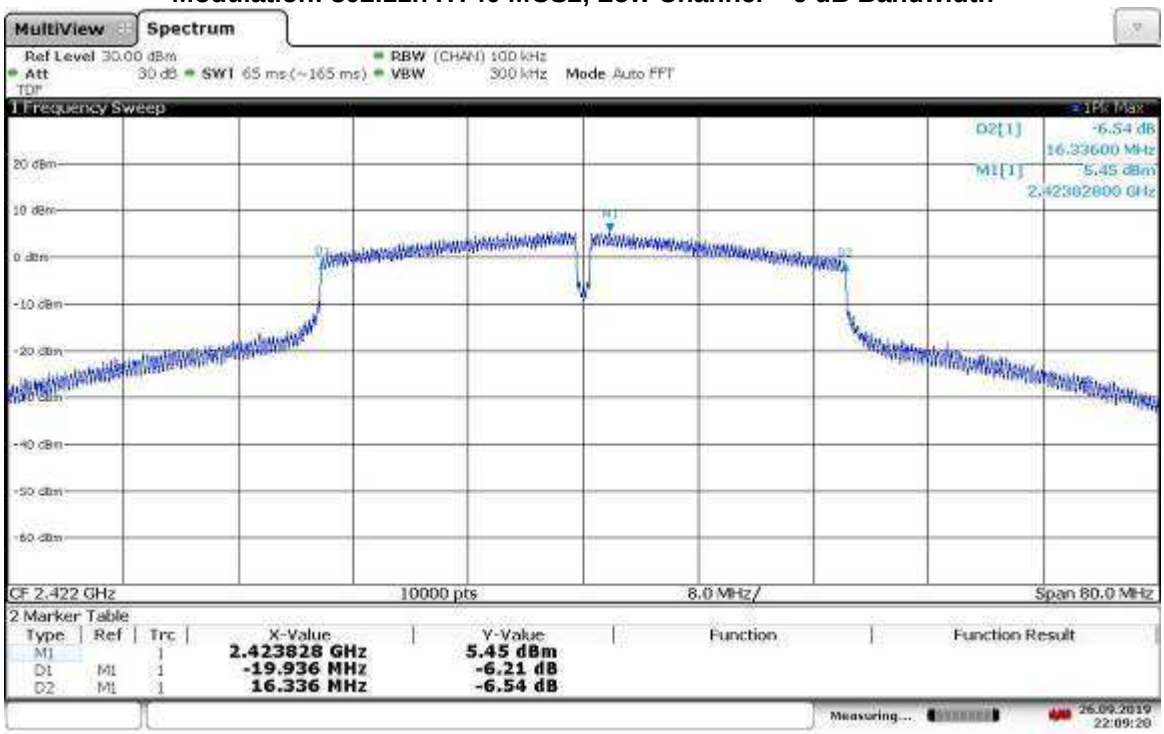
22:00:26 26.09.2019

Modulation: 802.11n HT40 MCS1, High Channel – 6 dB Bandwidth



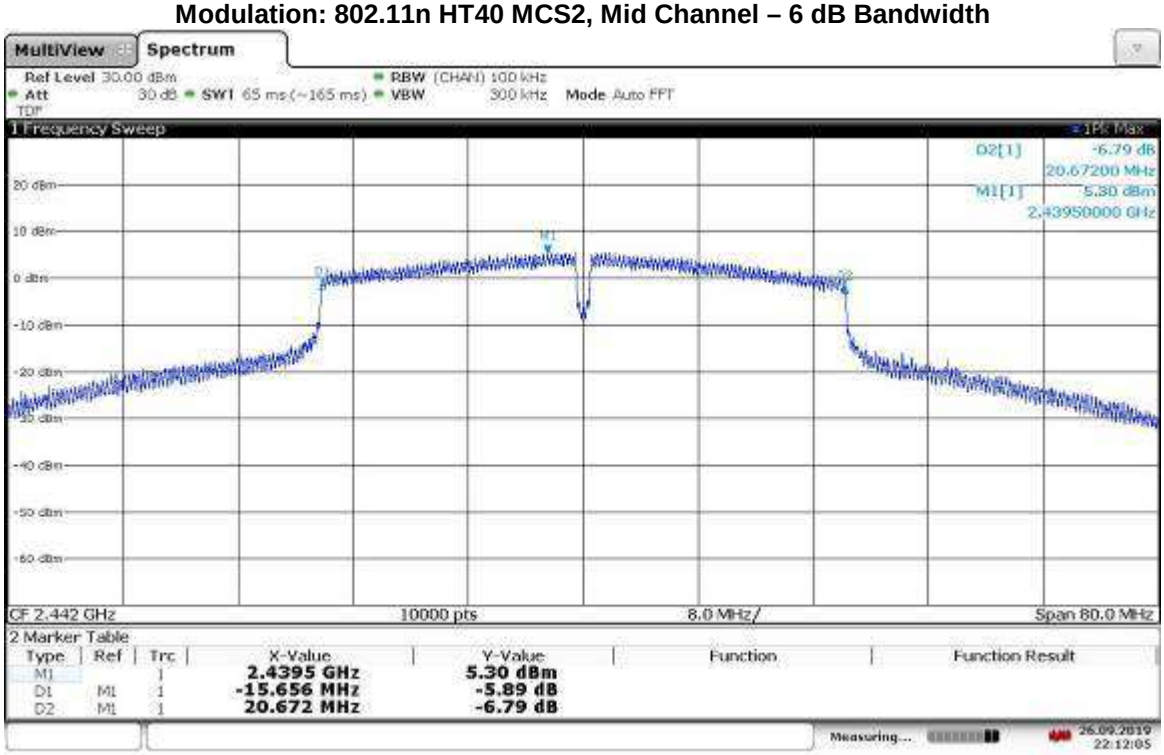
21:55:37 26.09.2019

Modulation: 802.11n HT40 MCS2, Low Channel – 6 dB Bandwidth



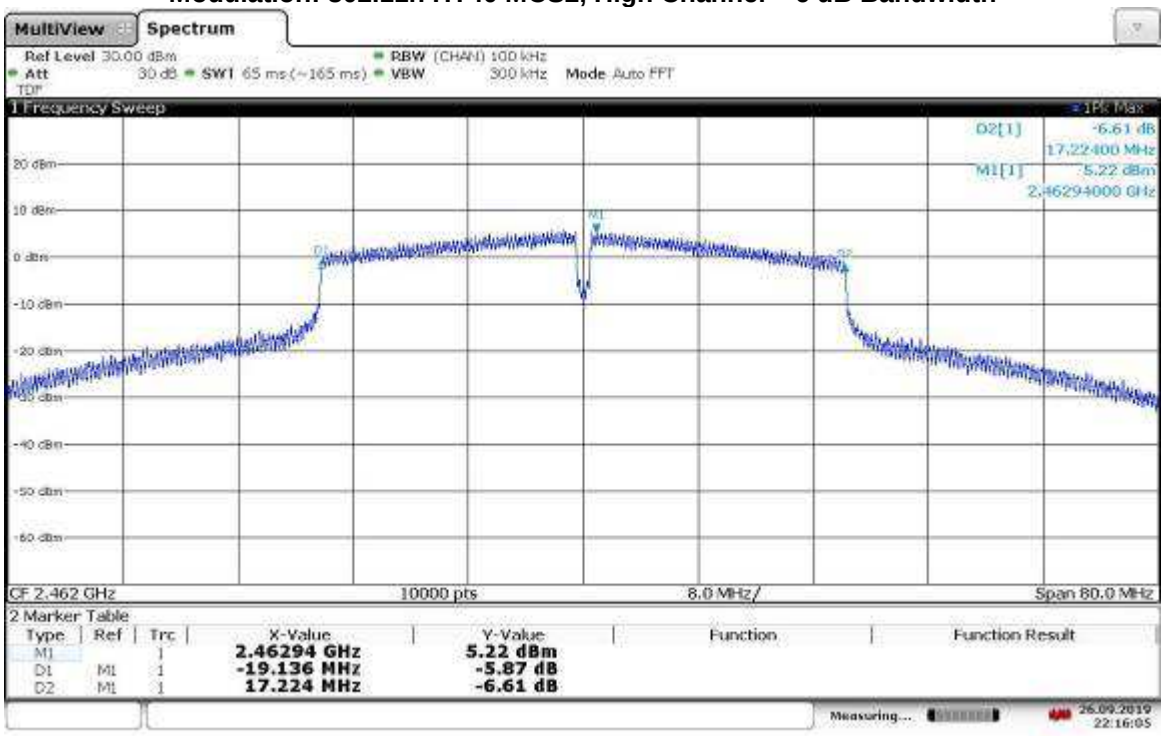
22:09:21 26.09.2019

Modulation: 802.11n HT40 MCS2, Mid Channel – 6 dB Bandwidth



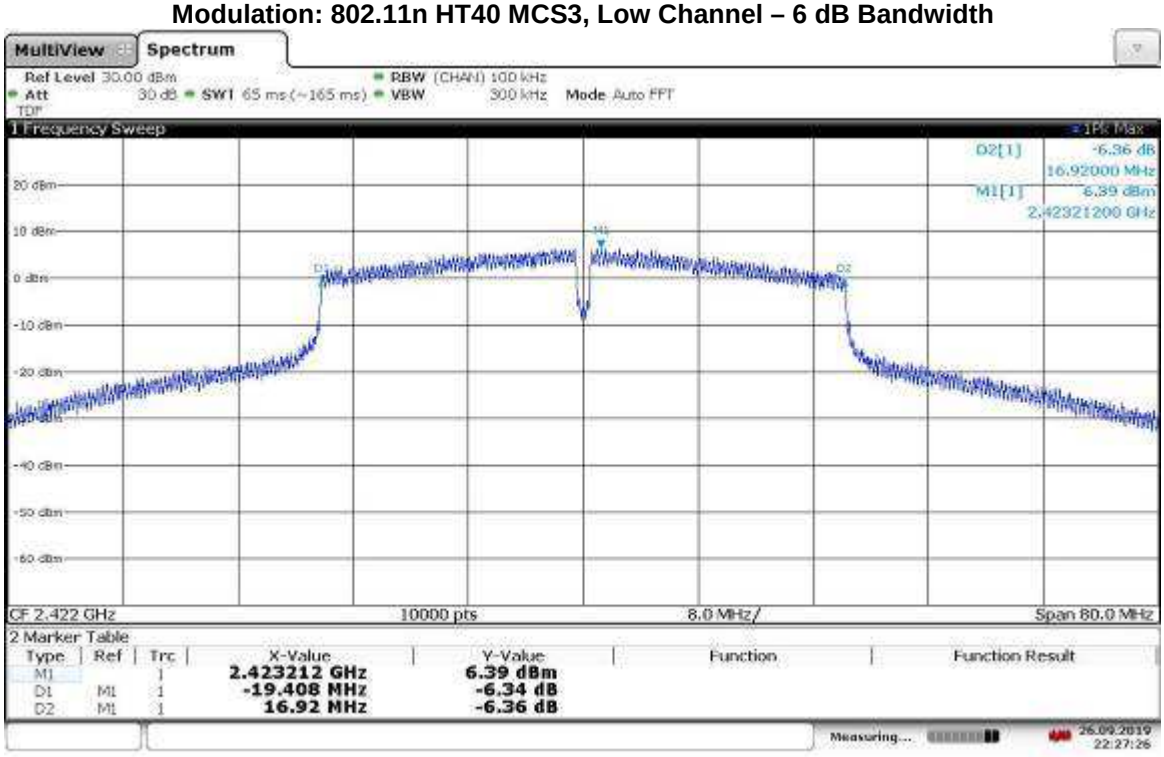
22:12:06 26.09.2019

Modulation: 802.11n HT40 MCS2, High Channel – 6 dB Bandwidth



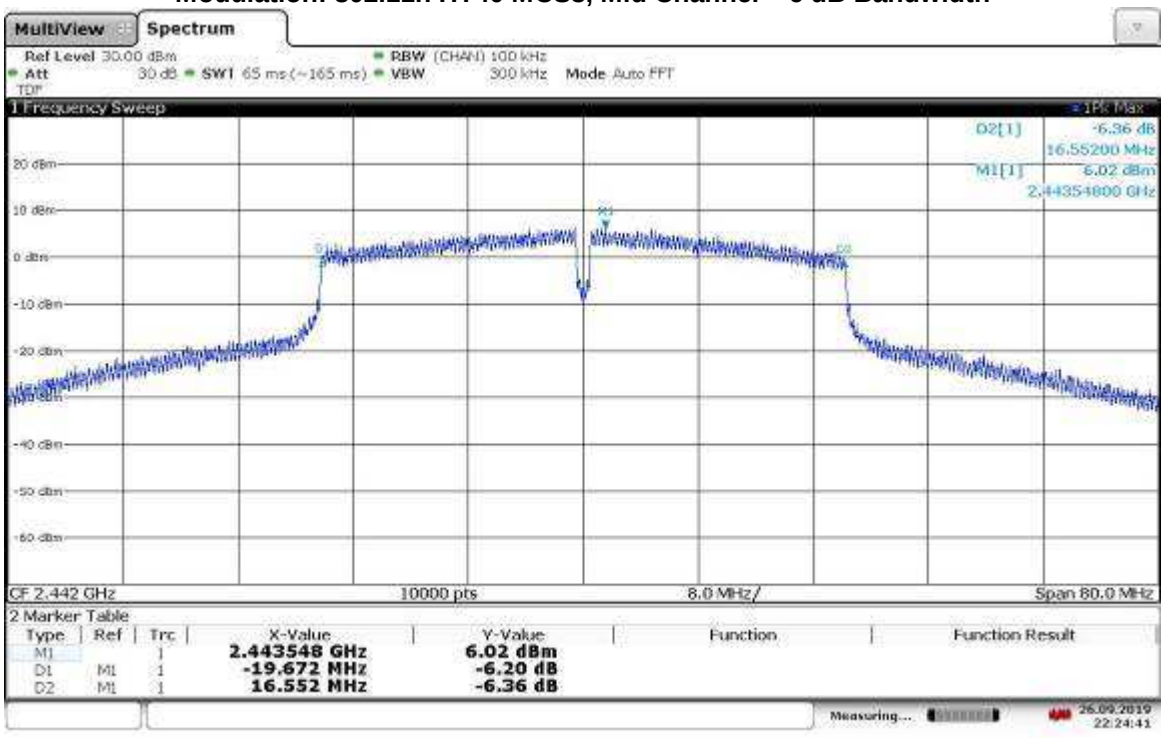
22:16:06 26.09.2019

Modulation: 802.11n HT40 MCS3, Low Channel – 6 dB Bandwidth



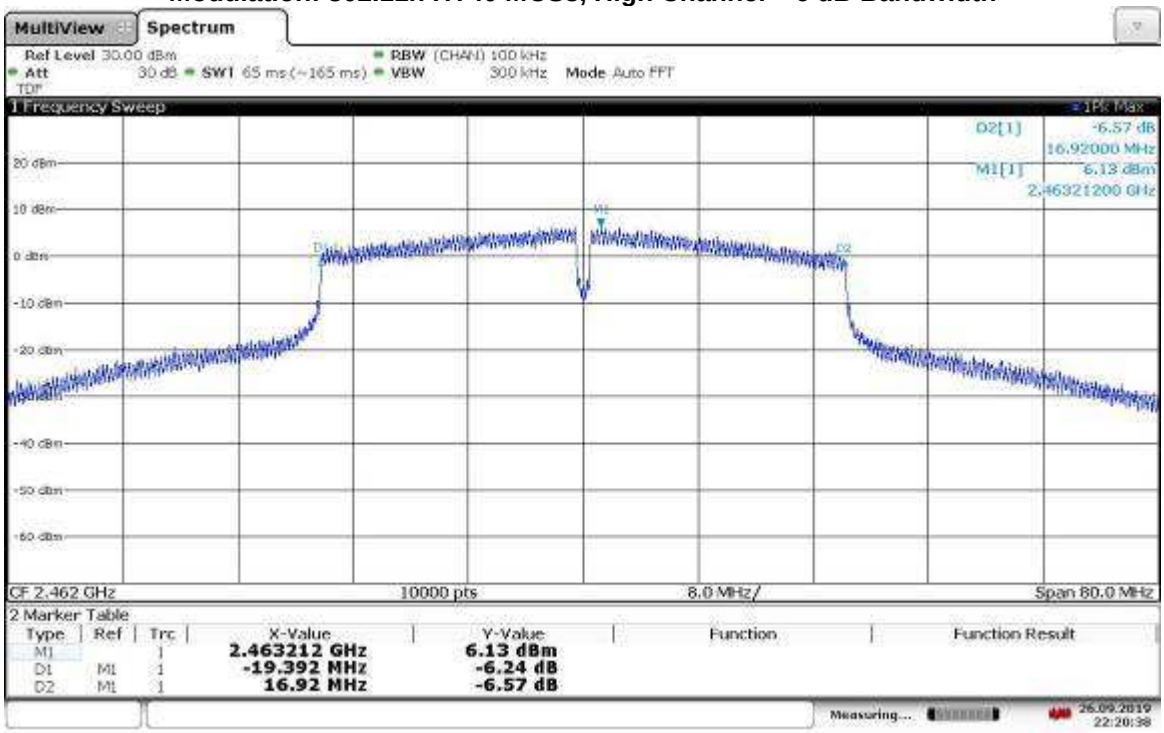
22:27:26 26.09.2019

Modulation: 802.11n HT40 MCS3, Mid Channel – 6 dB Bandwidth



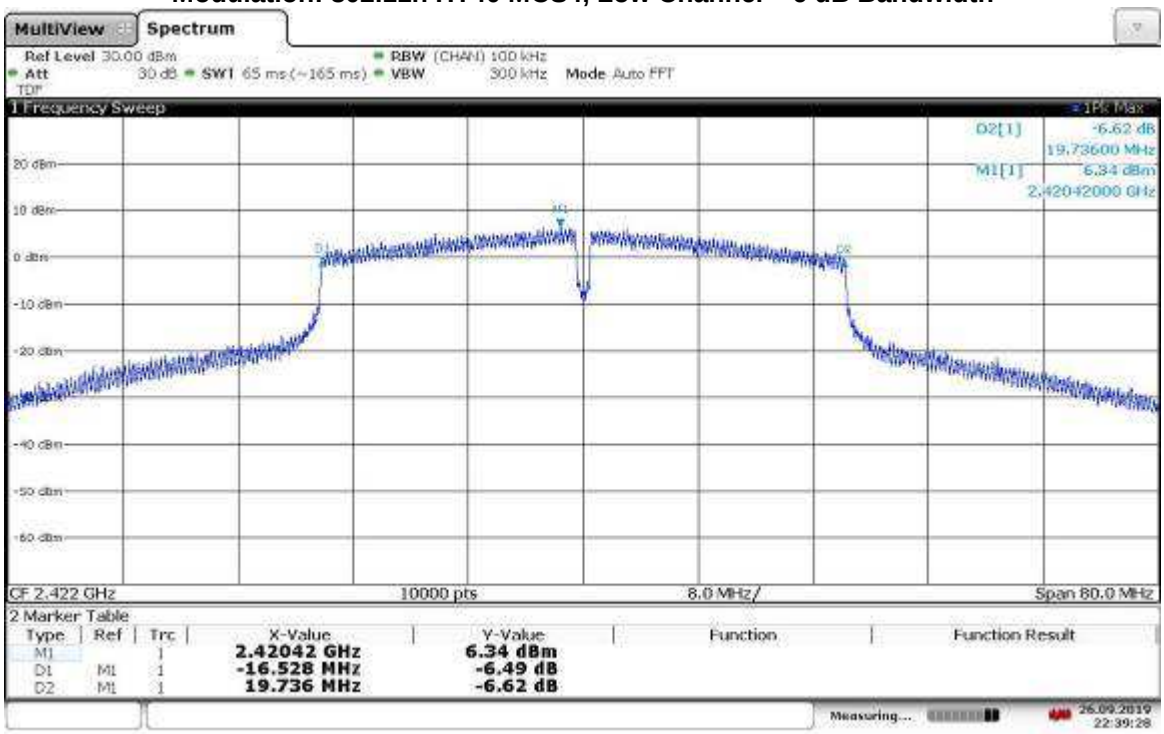
22:24:42 26.09.2019

Modulation: 802.11n HT40 MCS3, High Channel – 6 dB Bandwidth



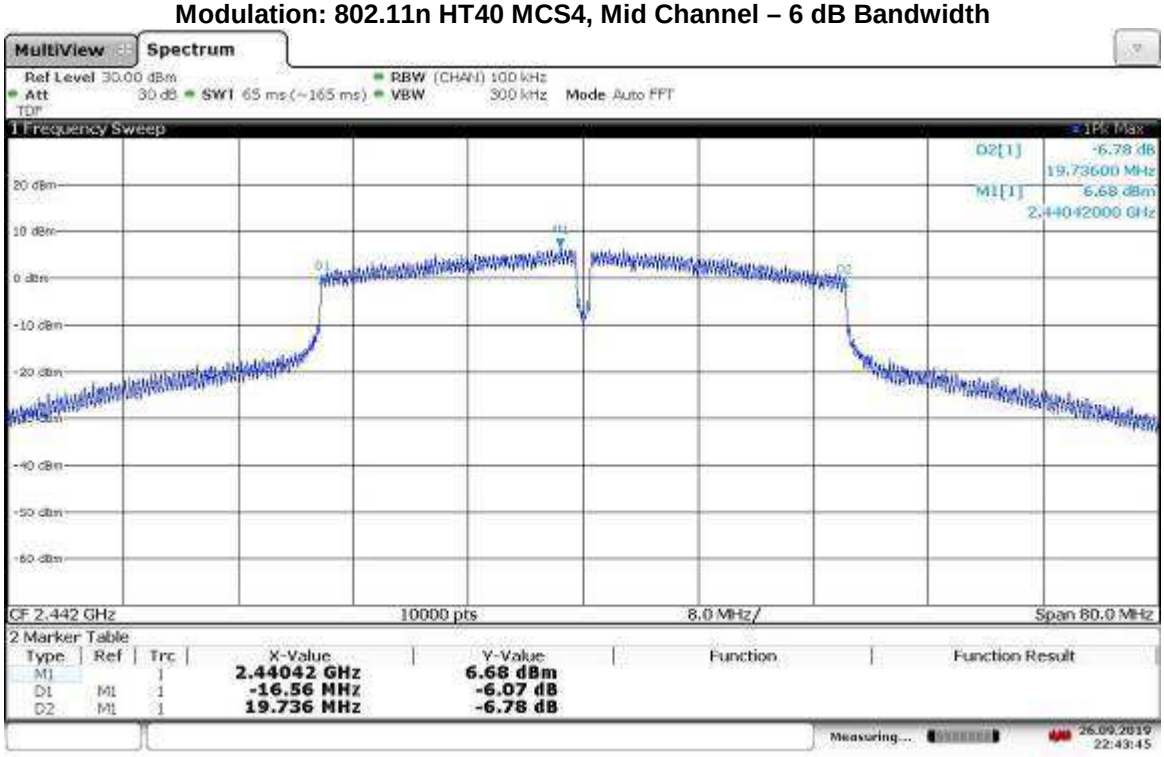
22:20:38 26.09.2019

Modulation: 802.11n HT40 MCS4, Low Channel – 6 dB Bandwidth



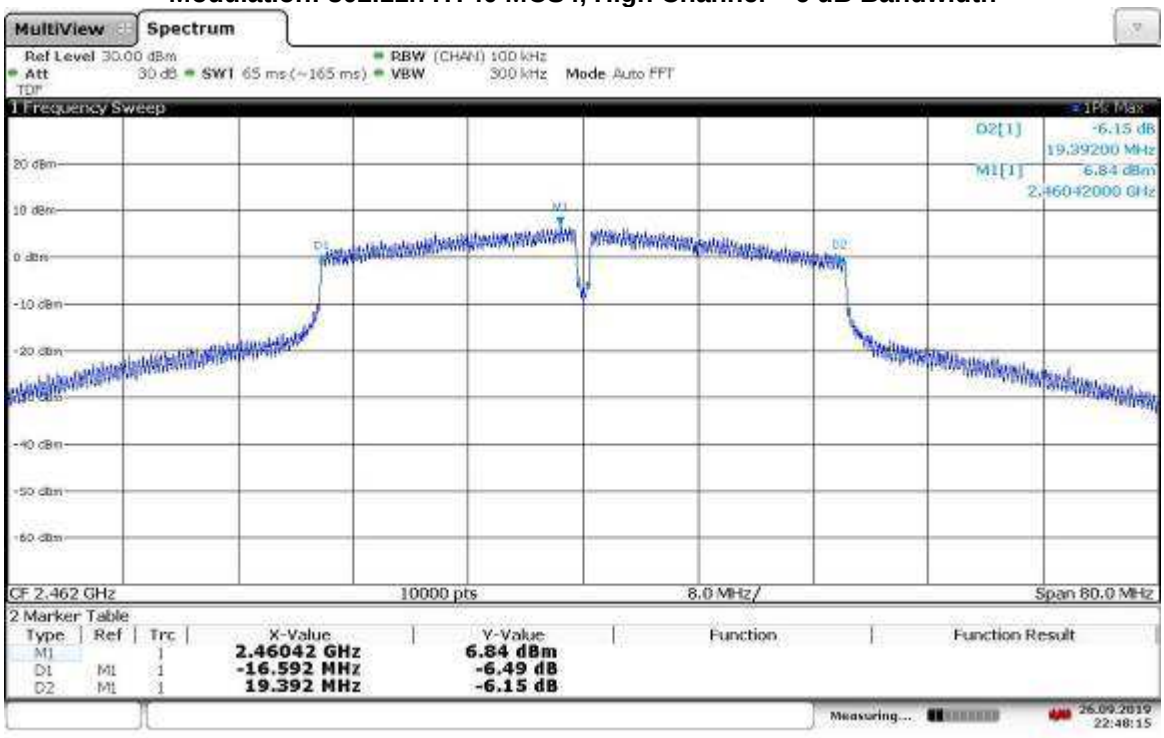
22:39:28 26.09.2019

Modulation: 802.11n HT40 MCS4, Mid Channel – 6 dB Bandwidth



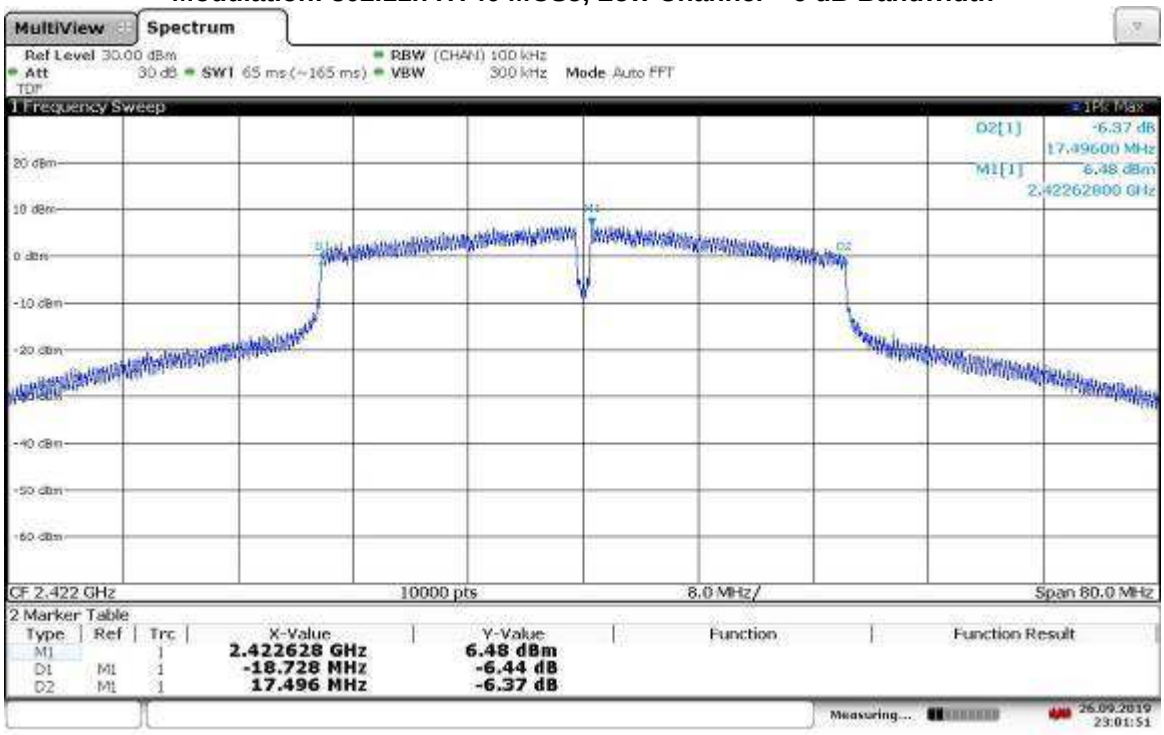
22:43:46 26.09.2019

Modulation: 802.11n HT40 MCS4, High Channel – 6 dB Bandwidth



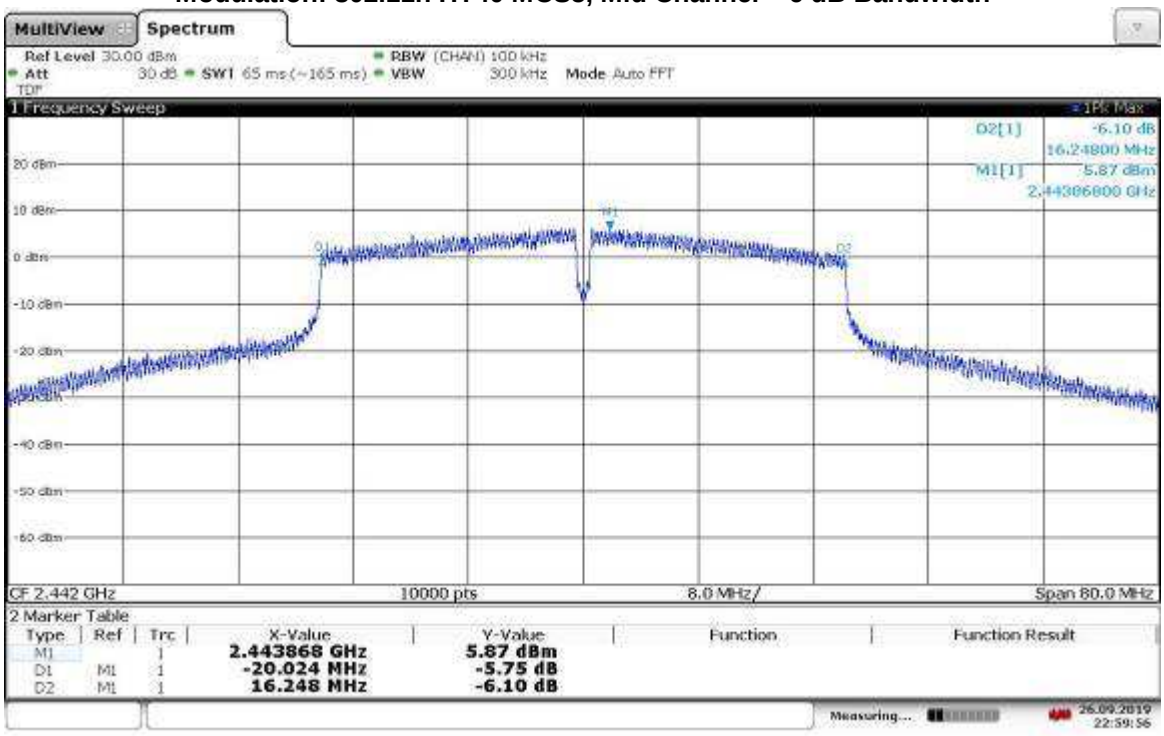
22:48:16 26.09.2019

Modulation: 802.11n HT40 MCS5, Low Channel – 6 dB Bandwidth



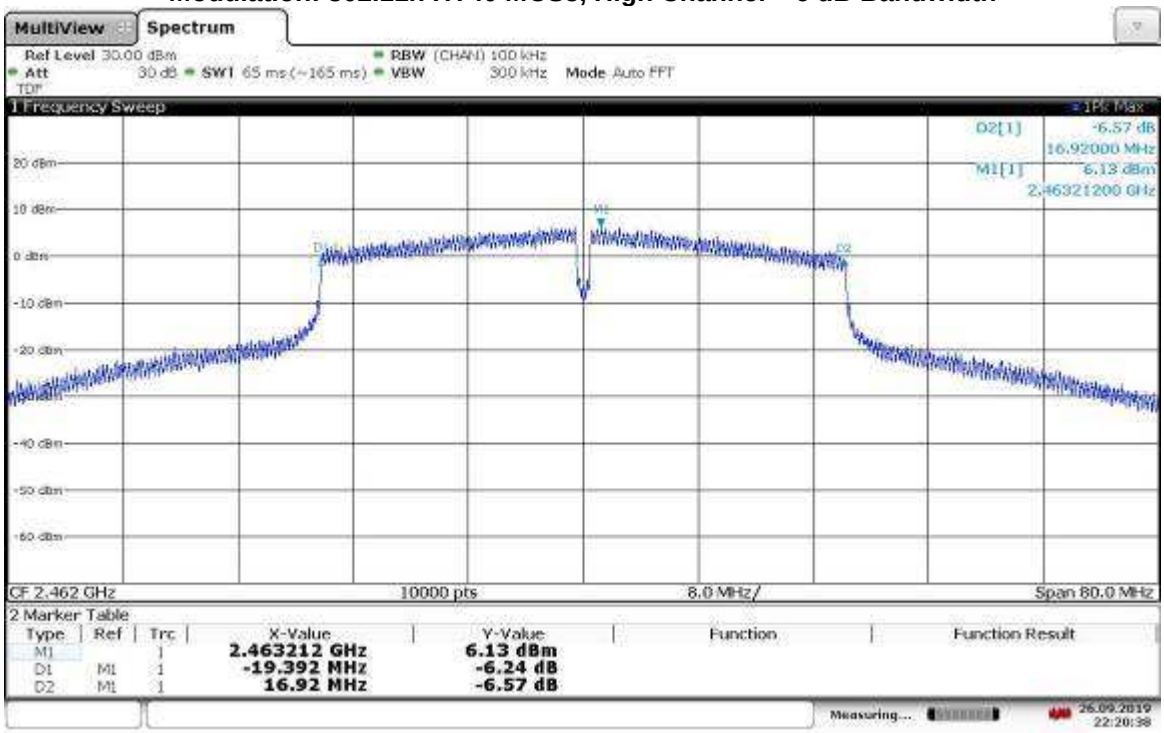
23:01:52 26.09.2019

Modulation: 802.11n HT40 MCS5, Mid Channel – 6 dB Bandwidth



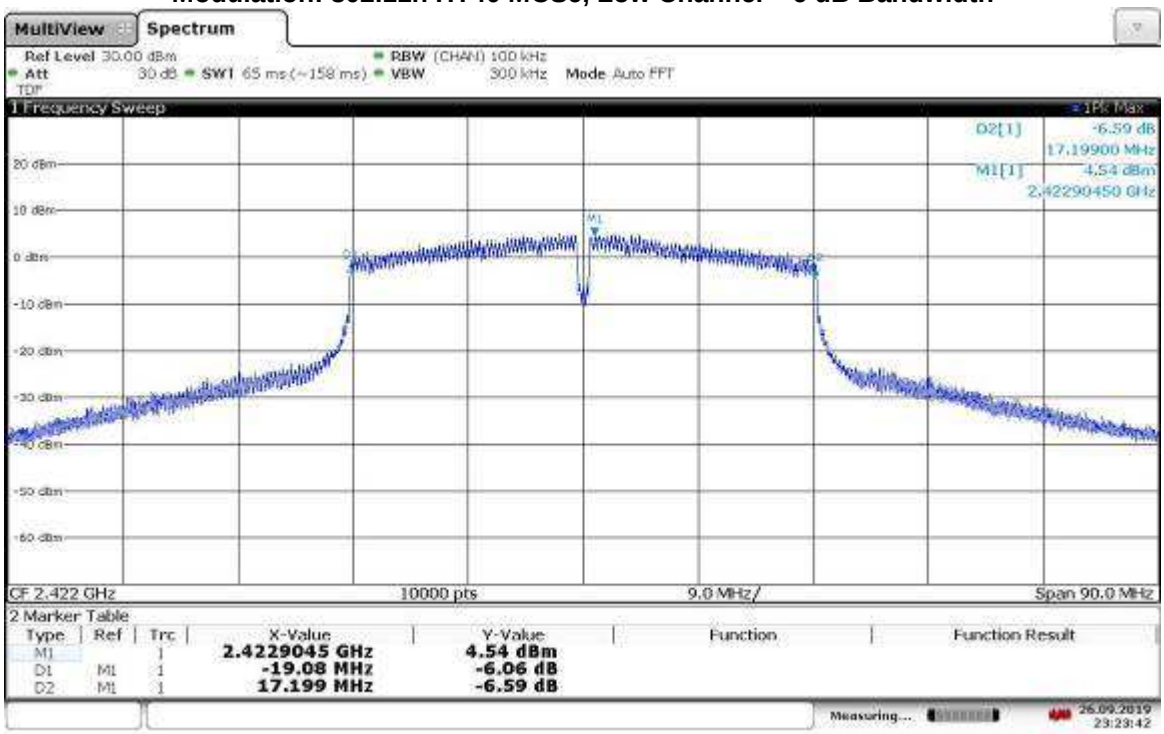
22:59:57 26.09.2019

Modulation: 802.11n HT40 MCS5, High Channel – 6 dB Bandwidth



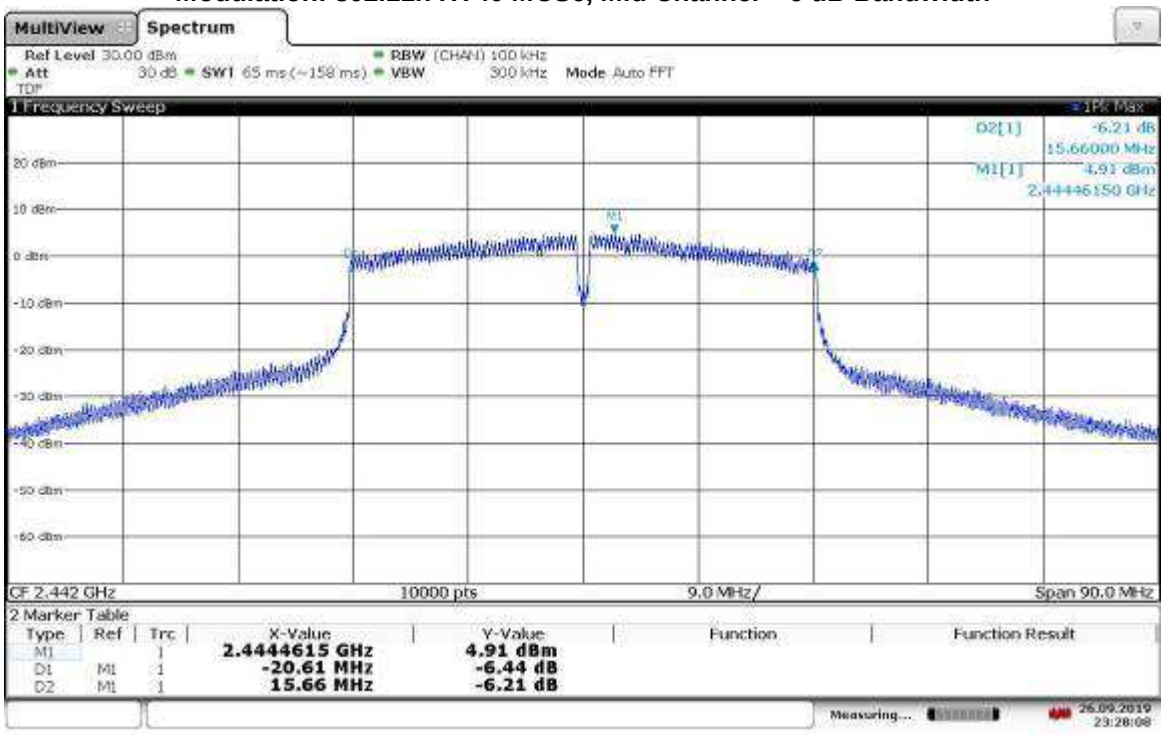
22:20:38 26.09.2019

Modulation: 802.11n HT40 MCS6, Low Channel – 6 dB Bandwidth



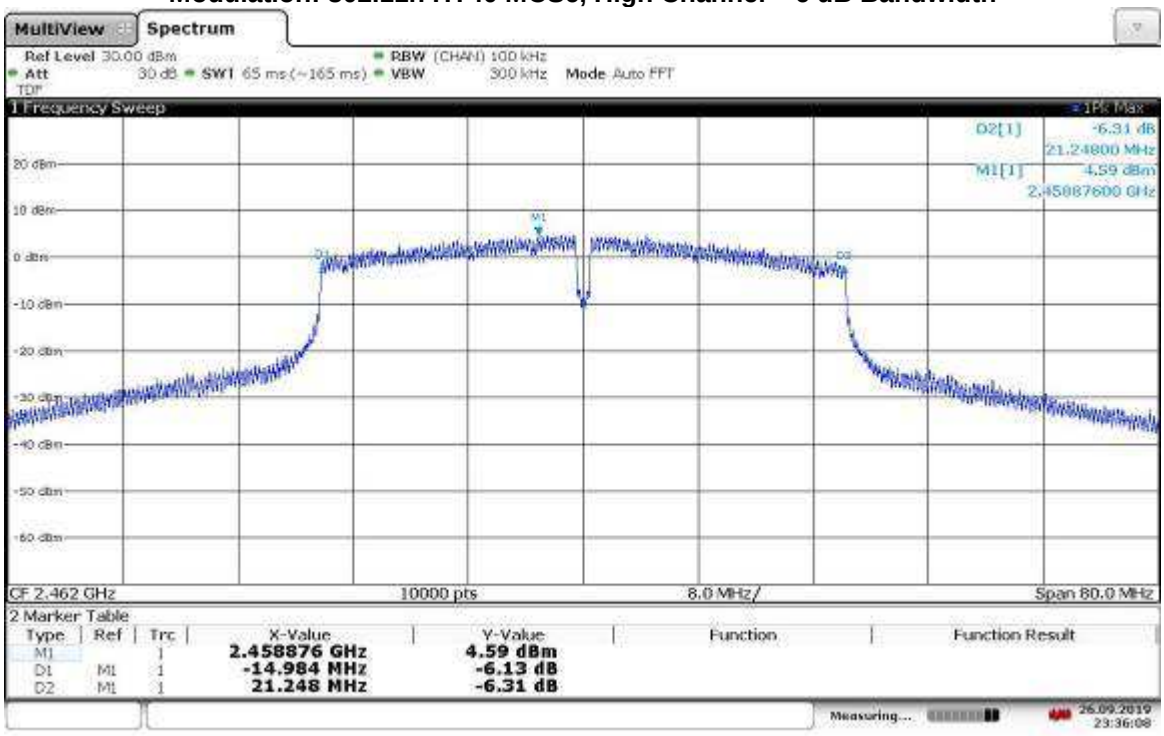
23:23:43 26.09.2019

Modulation: 802.11n HT40 MCS6, Mid Channel – 6 dB Bandwidth



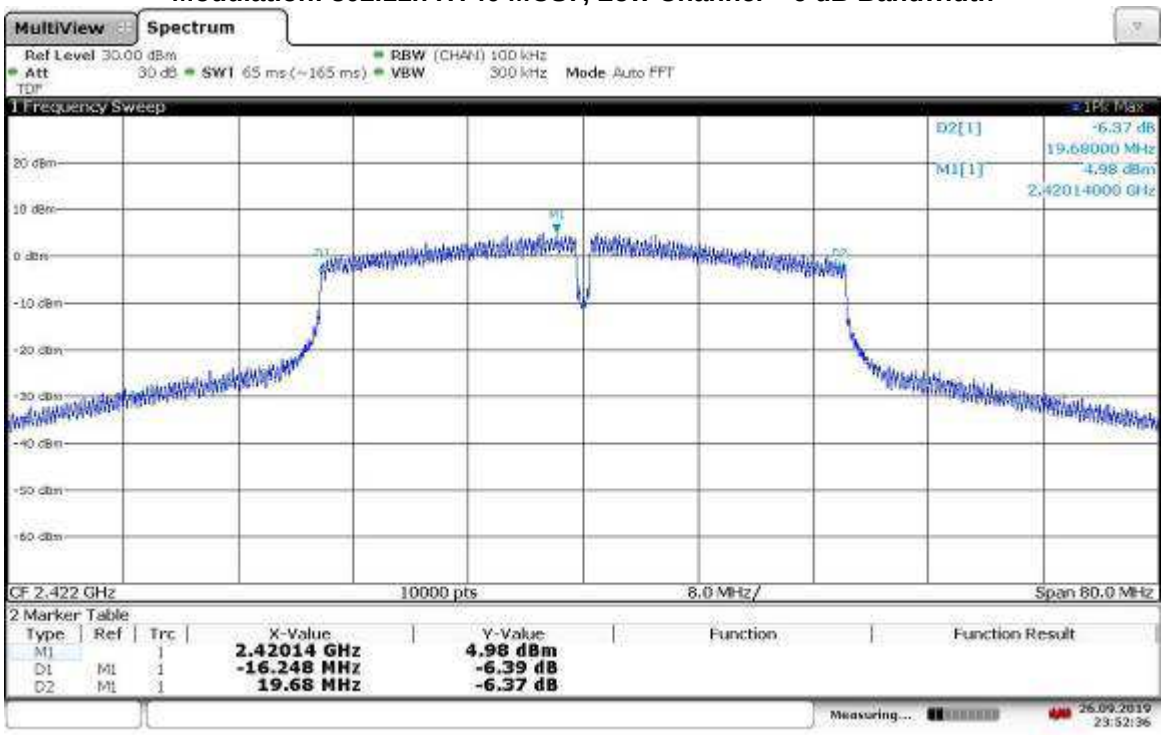
23:28:08 26.09.2019

Modulation: 802.11n HT40 MCS6, High Channel – 6 dB Bandwidth



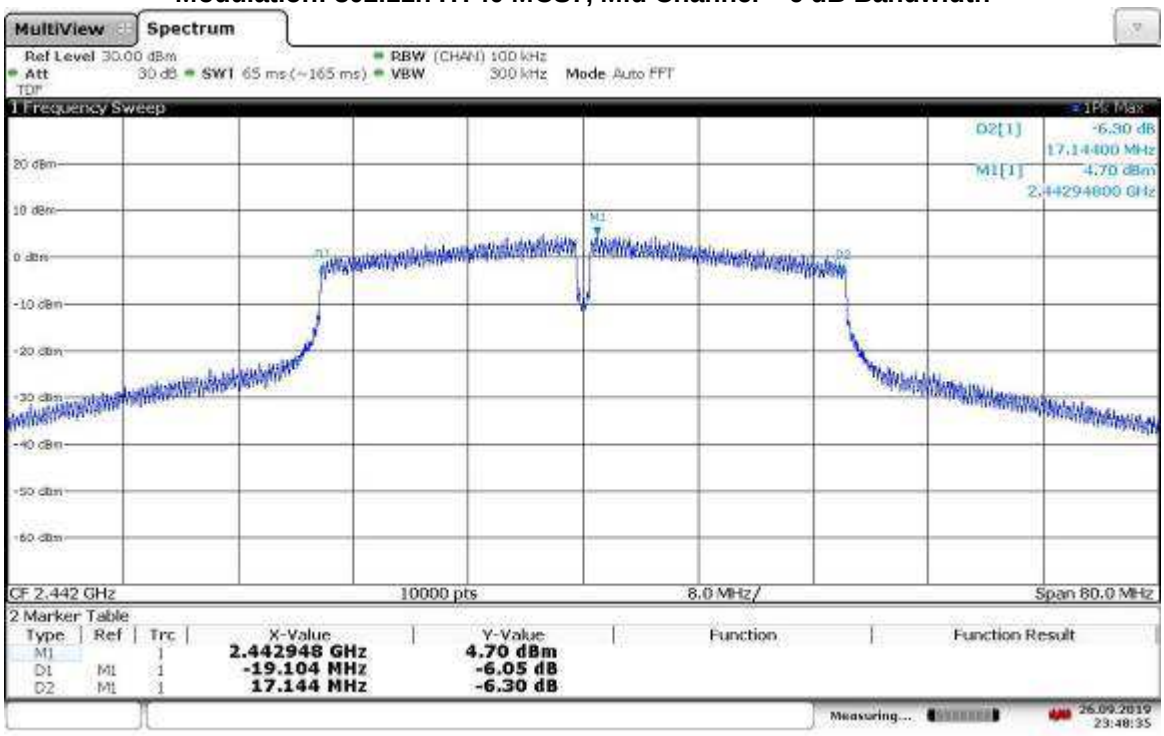
23:36:08 26.09.2019

Modulation: 802.11n HT40 MCS7, Low Channel – 6 dB Bandwidth



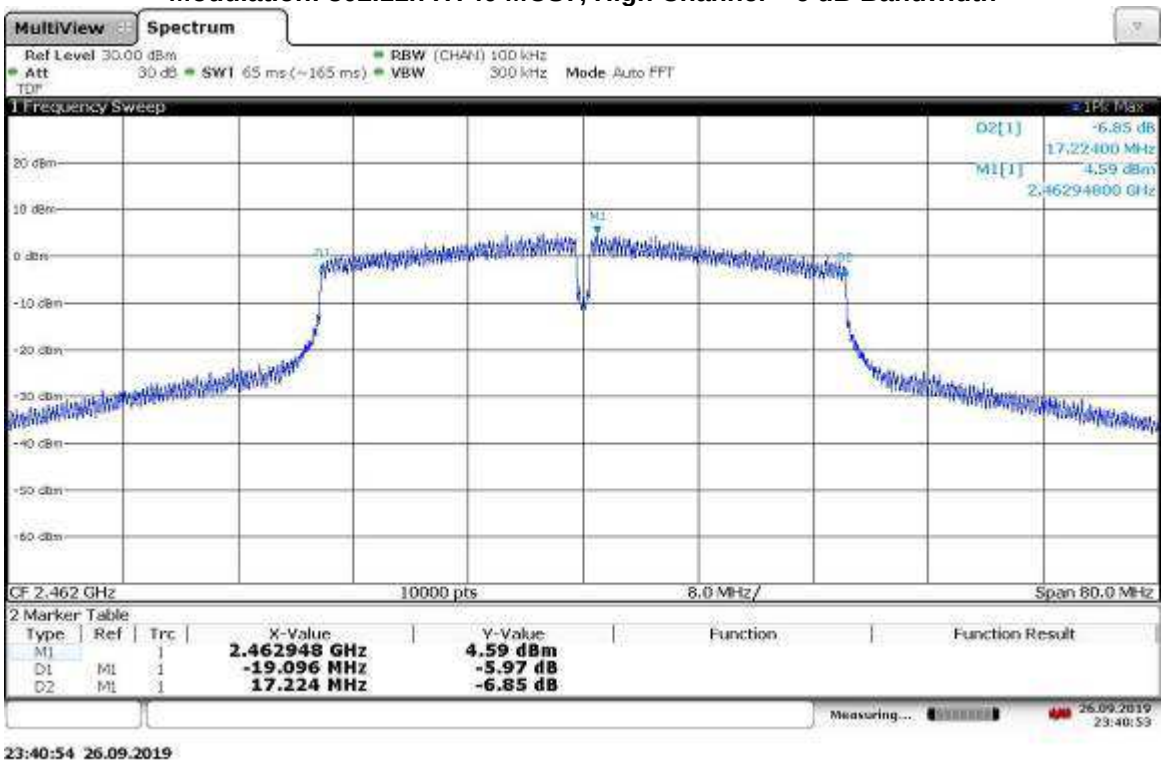
23:52:37 26.09.2019

Modulation: 802.11n HT40 MCS7, Mid Channel – 6 dB Bandwidth



23:48:36 26.09.2019

Modulation: 802.11n HT40 MCS7, High Channel – 6 dB Bandwidth

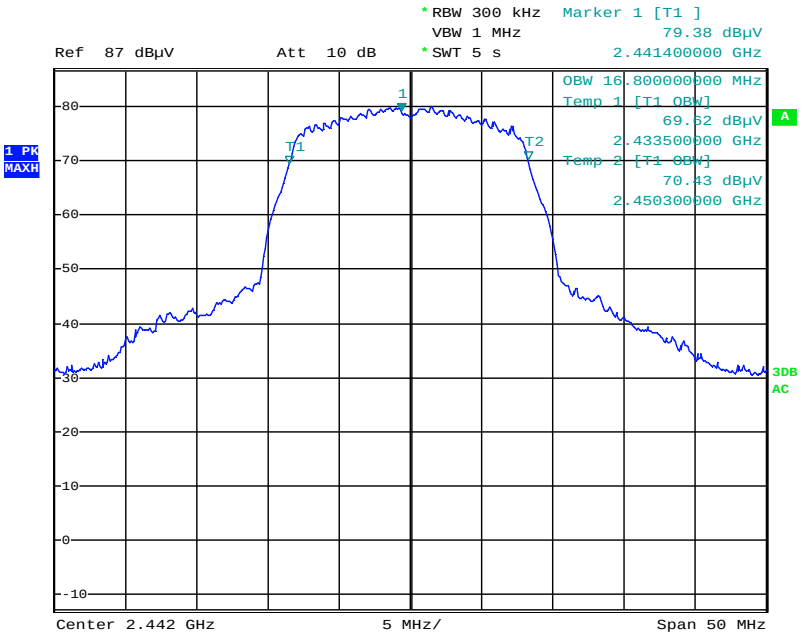


23:40:54 26.09.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 6 Mbps, Low Channel – Occupied Bandwidth

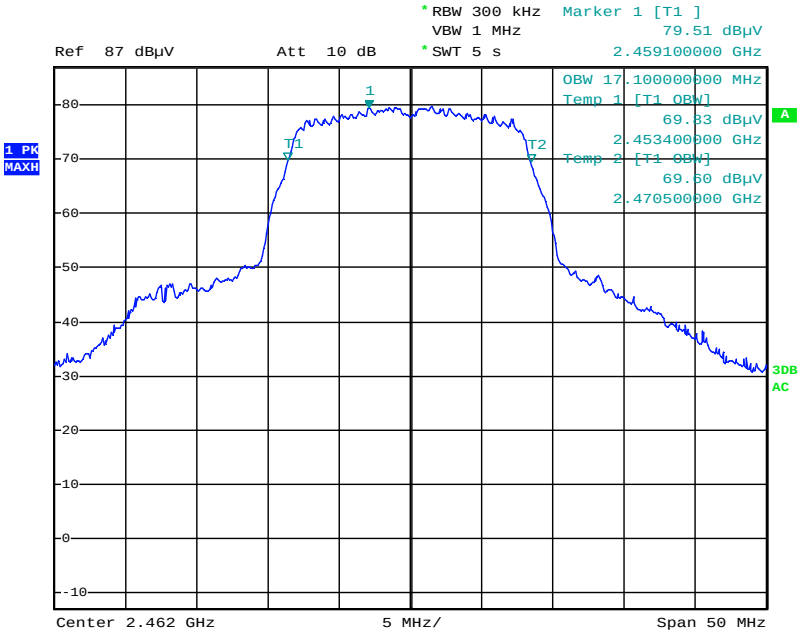
02:07:27 01.10.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 6 Mbps, Mid Channel – Occupied Bandwidth



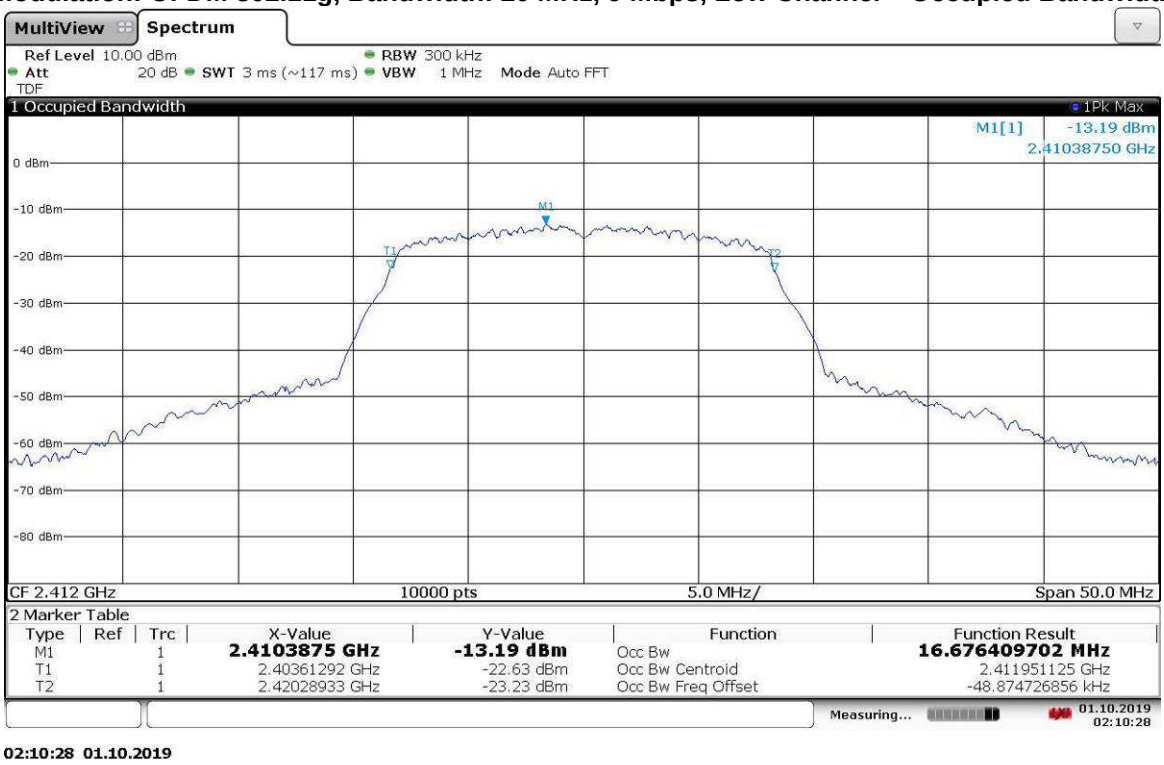
Date: 25.SEP.2019 17:51:04

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 6 Mbps, High Channel– Occupied Bandwidth



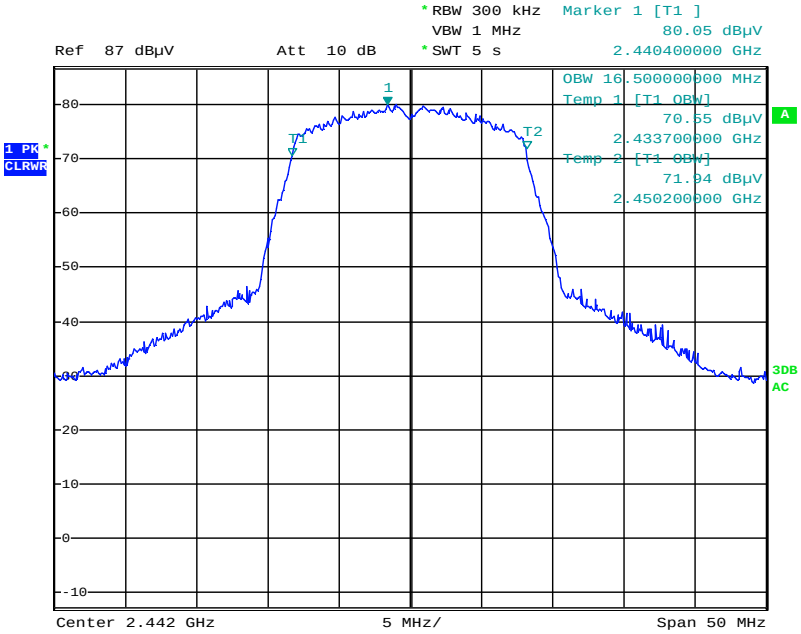
Date: 25.SEP.2019 17:52:50

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 9 Mbps, Low Channel – Occupied Bandwidth



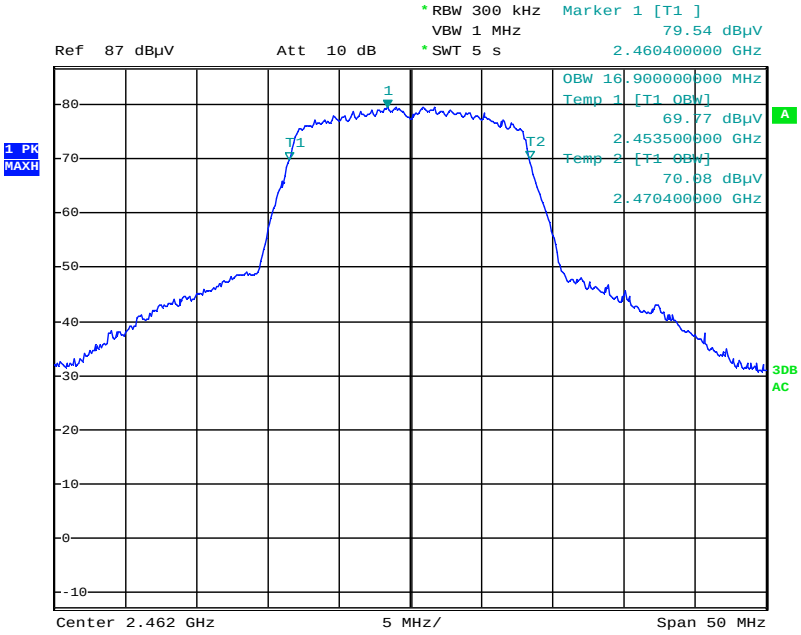
02:10:28 01.10.2019

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 9 Mbps, Mid Channel – Occupied Bandwidth



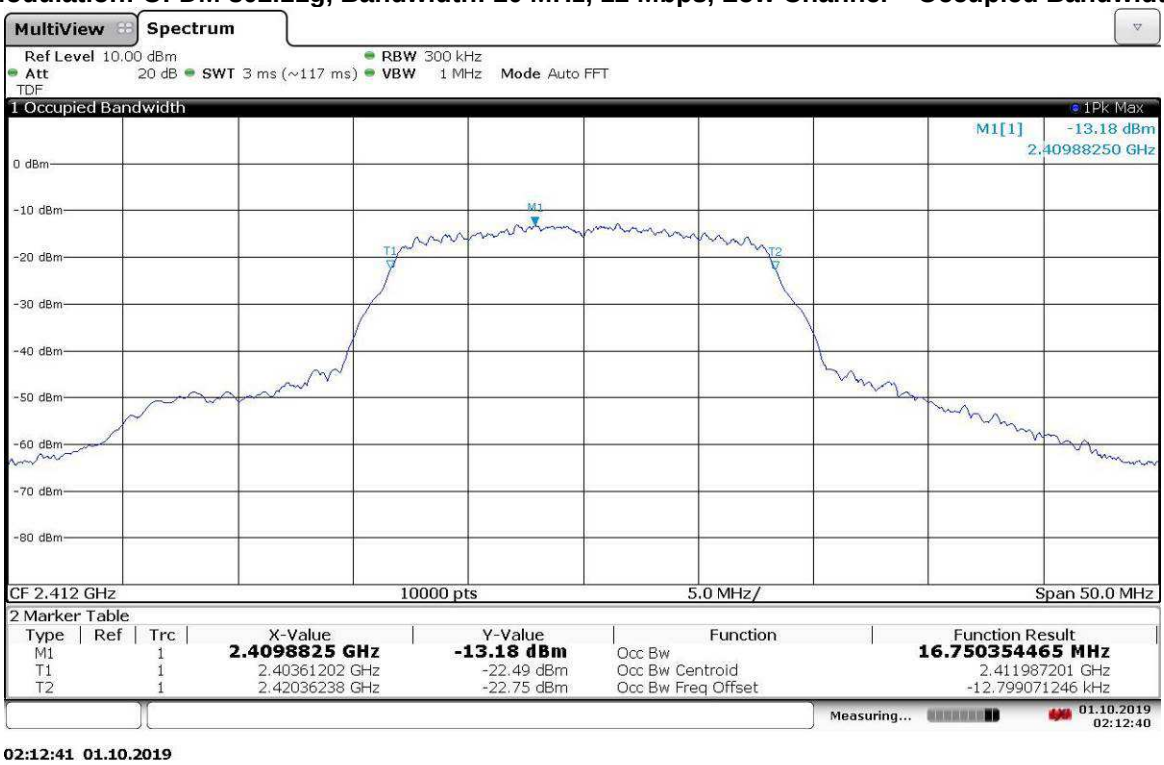
Date: 25.SEP.2019 18:02:39

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 9 Mbps, High Channel– Occupied Bandwidth

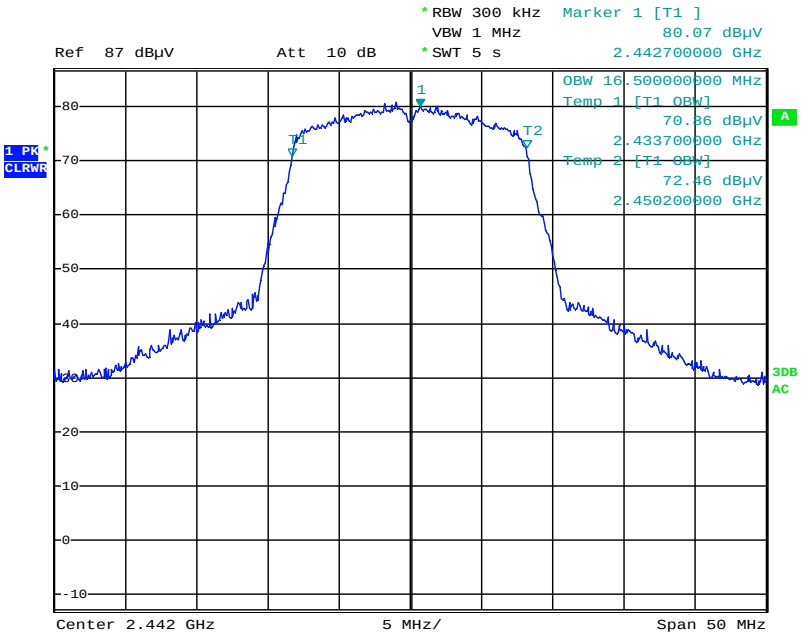


Date: 25.SEP.2019 18:01:24

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 12 Mbps, Low Channel – Occupied Bandwidth

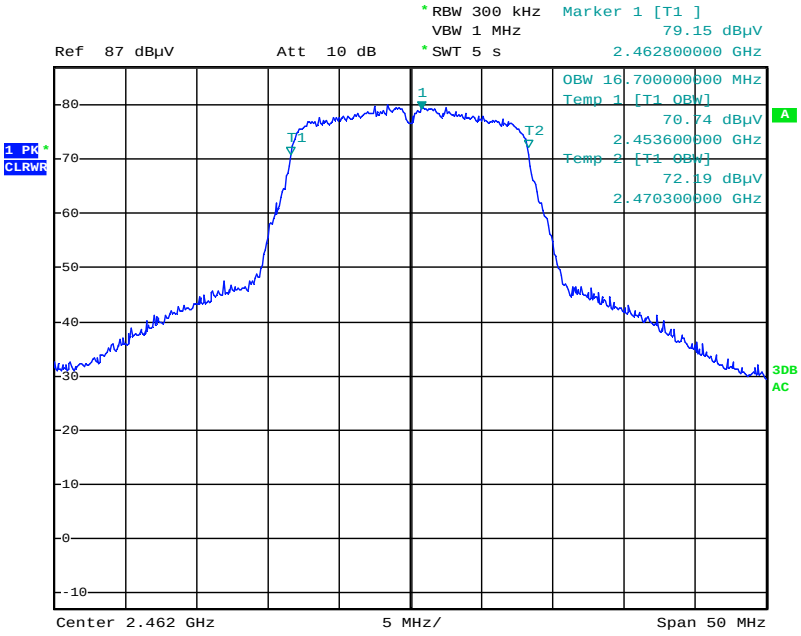


Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 12 Mbps, Mid Channel – Occupied Bandwidth



Date: 25.SEP.2019 18:07:24

Modulation: OFDM 802.11g, Bandwidth: 20 MHz, 12 Mbps, High Channel– Occupied Bandwidth



Date: 25.SEP.2019 18:08:30